THE DETERMINANTS OF FINANCIAL INCLUSION IN SELECTED AFRICAN COUNTRIES

by

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DECLARATION

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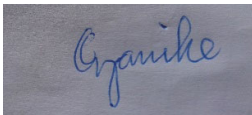Degree: Doctor of Philosophy (PhD) in Management Studies

I, the undersigned, declare that this thesis entitled,

"Determinants of financial inclusion in selected African countries"

is my own work, and that all the sources I have used or cited have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

13 September 2021

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DEDICATION

I dedicate this thesis to my parents, Mr Simon and Mrs Spinola Njanike, both of whom not only taught me but also inspired me to work hard and achieve results.

ABSTRACT

This thesis investigated the determinants of financial inclusion with the emphasis on social networks in selected African countries, namely, the Democratic Republic of the Congo, Kenya, Eswatini and South Africa. Many individuals in Africa are still excluded from using formal financial services. Low financial inclusion can result in income disparity, poverty and sluggish economic growth. The purpose of this study was to comprehend and explain financial inclusion, while examining the effects of social networks on financial inclusion. An empirical exploration was conducted to establish theoretically hypothesised relationships. The study contributed to the existing body of literature in that it determined the contribution of social networks to individual financial inclusion, a topic which had not been explored adequately.

Probit models were run, using Finscope Surveys data to estimate the determinants of financial inclusion in the selected African countries. The following variables were considered: age, gender, marital status, proof of residence, bank access, location, education status, social networks, getting financial advice, monthly salary, annual income, access to internet and the use of mobile phones. Linear probability models were used to check for robustness. Robust consistent errors were used to reduce the effect of heterogeneity.

The use of merged data showed that social networks significantly influence financial inclusion in most of the selected African countries, with the exception of the Democratic Republic of the Congo, although a relationship was found to exist. The results also showed that the variable 'access to internet' is significant in all country datasets, except for the DRC. The variable 'getting financial advice' is significant in all five datasets.

The study recommends that the governments of the countries studied invest in improving the information and communications technology infrastructure in their countries in order to improve access to financial services and the use thereof. Finally, as part of financial inclusion, concerted efforts should be made to disseminate financial advice through the internet and social media platforms to influence how financial decisions or choices are made.

Keywords: financial inclusion; determinants; Africa; Democratic Republic of Congo, Eswatini; Kenya

KAKARETSO

Phuputso ena e batlisitse mabaka a kenyeletso ya ditjhelete ka toboketso ya dikgokahano tsa setjhaba dinaheng tse kgethilweng tsa Afrika, e leng, Rephabliki ya Demokrasi ya Congo, Kenya, Eswatini le Afrika Borwa. Batho ba bangata Afrika ba ntse ba qhelelwa ka thoko tshebedisong ya ditshebeletso tsa ditjhelete e hlophisitsweng. Kenyeletso e tlase ya ditjhelete e ka baka ho se lekane ditabeng tsa ditjhelete, bofuma le kgolo e monyebe ya moruo. Sepheo sa phuputso ena e ne e le ho utlwisisa le ho hlalosa kenyeletso ya ditjheleteng, ha ho ntse ho hlahlojwa diphello tsa dikgokahano tsa setjhaba kenyeletsong ya ditjhelete. Patlisiso ya dinnete e ile ya etswa ho theha dikamano tse inahanelwang tsa mehopolo. Phuputso e kentse letsoho dingodilweng tse teng ka hore e lekantse tlatsetso ya dikgokahano tsa setjhaba ho kenyeletso ya ditjhelete ka bomong, sehlooho se neng se sa hlahlojwa ka ho lekana.

Mokgwa wa tshusumetso o ile wa etswa, ho sebediswa dintlha tsa Diphuputso tsa Finscope ho hakanya ditekanyo tsa kenyeletso ya ditjhelete dinaheng tse kgethilweng tsa Afrika. Ho ile ha nahanwa ka dikarolo tse latelang: dilemo, bong, boemo ba lenyalo, bopaki ba bodulo, phihlello ya banka, sebaka, boemo ba thuto,dikgokahano tsa setjhaba, ho fumana dikeletso tsa ditjhelete, moputso wa kgwedi, lekeno la selemo, phihlello ya inthanete le tshebediso ya mehala ya thekeng. Mekgwa e fapaneng ya menyetla e ile ya sebediswa ho lekola matla. Diphoso tse matla tse tsitsitseng di sebedisitswe ho fokotsa phello ya ho fapana.

Tshebediso ya dintlha tse kopaneng e bontshitse hore dikgokahano tsa setjhaba di susumetsa kenyeletso ya ditjhelete dinaheng tse ngata tse kgethilweng tsa Afrika, ntle le Rephabliki ya Demokrasi ya Congo, leha ele hore kamano e fumanwe e le teng. Diphetho di boetse di bontshitse hore 'phihlello ya inthanete' e fapaneng e bohlokwa ho disete tsa dintlha tsohle tsa dinaha, ntle le DRC. Mofuta o fapaneng wa 'ho fumana keletso ya ditjhelete' o bohlokwa ho disete tsohle tsa dintlha tse hlano.

Phuputso e kgothaletsa hore mebuso ya dinaha tse ithutilweng e tsetele ho ntlafatseng meralo ya theknoloji ya tlhahisoleseding le dikgokahano dinaheng tsa yona e le ho ntlafatsa phihlello ya ditshebeletso tsa ditjhelete le tshebediso ya tsona. Qetellong, e le karolo ya kenyeletso ya ditjhelete, ho lokela hore ho etswe boiteko bo kopanetsweng ho phatlalatsa keletso ka tsa ditjhelete ka inthanete le dithala tsa

metjha ya phatlalatso ya ditaba tsa setjhaba ho susumetsa hore na diqeto tsa ditjhelete kapa dikgetho di etswa jwang.

Mantswe a sehlooho: kenyeletso ya ditjhelete; ditekanyo; Afrika; Rephabliki ya Demokrasi ya Congo, Eswatini; Kenya

ISIFINQO

Lo mqondo uphenye izinkomba zokufakwa kwezezimali kugcizelelwa ukuxhumana nabantu emazweni akhethiwe ase-Afrika, okungukuthi, iDemocratic Republic of the Congo, Kenya, ESwatini kanye neNingizimu Afrika. Abantu abaningi e-Afrika basabekelwe nxanye ekusebenziseni izinsizakalo ezisemthethweni zezezimali. Ukufakwa kwezezimali okuphansi kungaholela ekungalingani kwemali engenayo, ubumpofu kanye nokukhula komnotho okuntengantengayo. Inhloso yalolu cwaningo bekuwukuqonda nokuchaza ukufakwa kwezezimali, ngenkathi kubhekwa imiphumela yokuxhumana nabantu ekufakweni kwezezimali. Ukuhlola okwenziwe ngamandla kwenziwa ukuze kusungulwe ubudlelwano obucatshangelwayo. Ucwaningo lube nomthelela ohlakeni lwezincwadi olukhona ngoba lunqume umnikelo wokuxhumana nabantu ekufakweni kwezezimali ngakunye, isihloko ebesingakahlolwa ngokwanele.

Amamodeli kaProbit aqhutshwa, kusetshenziswa idatha yeZinhlolovo zikaFinscope ukulinganisa izinkomba zokufakwa kwezezimali emazweni akhethiwe ase-Afrika. Lokhu okuguqukayo okulandelayo kubhekiwe: ubudala, ubulili, isimo somshado, ubufakazi bendawo yokuhlala, ukufinyelela kwebhange, indawo, isimo semfundo, ukuxhumana nomphakathi, ukuthola izeluleko ngezezimali, umholo wanyanga zonke, imali engenayo yonyaka, ukufinyelela kuyi-inthanethi nokusetshenziswa komakhalekhukhwini. Amamodeli wamathuba wokulinganisa asetshenziselwe ukubheka ukuqina. Kusetshenziswe amaphutha angaguquki aqinile ukunciphisa umphumela wokungafani.

Ukusetshenziswa kweminininingwane ehlanganisiwe kukhombisile ukuthi ukuxhumana nomphakathi kunomthelela omkhulu ekufakweni kwezezimali emazweni amaningi ase-Afrika akhethiwe, ngaphandle kweDemocratic Republic of the Congo, yize kwatholakala ukuthi kukhona ubudlelwano. Imiphumela futhi ikhombise ukuthi okuguquguqukayo 'ukufinyelela kuyi-inthanethi' kubalulekile kuwo wonke amasethi wedatha wezwe, ngaphandle kweDRC. Ukuhlukahluka 'kokuthola izeluleko zezezimali' kubalulekile kuwo wonke amasethi wedatha amahlanu.

Ucwaningo luncoma ukuthi ohulumeni bamazwe abafundile batshale imali ekwenzeni ngcono ingqalasizinda yezobuchwepheshe bezokwazisa nokuxhumana emazweni abo ukuze kuthuthukiswe ukutholakala kwezinsizakalo zezezimali nokusetshenziswa kwazo. Ekugcineni, njengengxenye yokufakwa kwezezimali, kufanele kwenziwe

imizamo ebumbene yokusabalalisa izeluleko zezezimali nge-inthanethi kanye nezinkundla zokuxhumana ukuze kube nomthelela ekutheni izinqumo zezimali noma ukukhetha kwenziwa kanjani.

Amagama abalulekile: ukufakwa kwezezimali; izinkomba; Afrika; Democratic Republic of Congo, Eswatini; Kenya

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DEFINITION OF TERMS

Financial inclusion

According to Gwalani and Parkhi (2014:372), financial inclusion is the process of ensuring that timely and adequate credit financial services as needed by vulnerable groups (weaker sections and low income) are available at an affordable cost. The International Monetary Fund (IMF) (2015:4) defined financial inclusion as the access to and use of formal financial services by households and firms. Financial inclusion has also been described as individuals and businesses having access to useful and affordable financial products and services, including transactions, savings, payments, credit and insurance, that meet their needs and that are delivered in a responsible and sustainable way (World Bank, 2014; 2017a; ADB, 2013, Cámara & Tuesta, 2014). Having reasonable access to all the important financial services is terms as being financially included because once-off access to some financial services does not construe financial inclusion in the true sense (Demirguc-Kunt, Klapper & Singer, 2013).

For the purposes of the current study, financial inclusion is defined as the delivery of appropriate formal financial services to all segments of the society, thereby meeting their savings, investment and credit requirements, financial literacy levels and convenience needs in a responsible and sustainable way.

Financial exclusion

This describes the inability of individuals, households or groups to access appropriate formal financial services (Sarma, 2012; Chakraborty, 2010).

Hedonicity

The word describes the level of satisfaction or pleasure in the use of formal financial services. The sense of wellbeing is based on the idea that increased pleasure and decreased pain lead to satisfaction. The concept of hedonicity is based on the notion of subjective wellbeing. An individual experiences happiness when positive effects and satisfaction with financial services are both high (Carruthers & Hood, 2004:229).

Pragmaticity

Pragmaticity refers to the degree of consideration of words and thoughts as tools and instruments for prediction, problem-solving, and action. The word describes the level of rejection of the idea that the function of thought is to pronounce, represent, or mirror reality in financial matters. Pragmaticity can be obtained when arriving at the conclusion that a high level of satisfaction has been achieved from the use of formal financial services. If one analyses the theory of pragmatism, it is clear that it is common to defend the rights of reason and morality (Hampden-Turner & Trompenaars, 2000; McFall, 1987).

Social network

This is a platform that uses internet-based social media sites to connect friends, family, colleagues, customers, or clients for a social or business purpose, or both (Musiał & Kazienko, 2013). The networking occurs through social media sites, such as Facebook, Twitter, LinkedIn, and Instagram.

LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations are used throughout the study:

ADB	Asian Development Bank
AfDB	African Development Bank
AFI	Alliance for Financial Inclusion
APS	Average Propensity to Save
ASCAs	Accumulating Savings and Credit Associations
ATM	Automated Teller Machine
BRICS	Brazil, Russia, India, China, South Africa
CGAP	Consultative Group to Assist the Poor
DRC	Democratic Republic of the Congo
EU	European Union
FI	Financial Inclusion
G-20	the Group Twenty
GDP	Gross Domestic Product
ICT	Information and Communications Technologies
IFIC	Investment Funds' Institute of Canada
IMF	International Monetary Fund
LCH	Life Cycle Hypothesis
MENAP	Middle East, North Africa, Afghanistan and Pakistan

MFI	Microfinance Institution
MOI	Member-owned Institutions
MPS	Marginal Propensity to Save
OECD	Organisation for Economic Cooperation and Development
OIC	Organisation of Islamic Cooperation
RBI	Reserve Bank of India
ROSCAs	Rotating Savings and Credit Associations
SME	Small to Medium Enterprises
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TTM	Trans-theoretical Model
UGT	Uses and Gratification Theory
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Program
US/USA	United States of America
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

CHAPTER 1:
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

Globally there has been an increased focus on issues concerning financial inclusion. According to the World Bank, the majority of people in Africa are financially excluded (World Bank, 2017b). However, opportunities to expand the formal financial ecosystem are increasing through the implementation of robust financial inclusion strategies. Financial inclusion is a crucial socioeconomic issue that requires the consideration of international institutions, governments, central banks, financial institutions, researchers and policy-makers (World Bank, 2015; 2017a; 2018). The absence of accessible and affordable bank accounts in a financial system can result in obstinate income disparity, poverty and sluggish economic growth (Honohan & King, 2009; Sarma & Pais, 2010; Mihasonirina & Kangni, 2011; Hussain & Chakraborty, 2012; Rama & Pal, 2012). In addition, low levels of financial inclusion in an economy lead to increased disparity between the poor and rich, as the population is characterised by inequitable growth. An absence of formal accounts at individual level may hinder formal savings, hence, a lack of access to affordable credit facilities. Individuals can also find that some informal financial services are risky and expensive.

Existing studies have mainly focused on financial inclusion (FI) at country, regional or continental level using supply data (Sarma & Pais, 2010; Camara & Tuesta, 2014). However, once the level of FI has been ascertained, it is critical for decision-makers to understand the factors that influence the decision to become financially included (Levine, Loayza & Beck, 2000; Martinez, Hidalgo & Tuesta, 2013; Thapur, 2013). A study by Zins and Weill (2016) examined the determinants of FI in Africa. Zins and Weill did not include variables such as use of social networks, access to internet and getting financial advice in their study.

Studies on the contribution of social networks to financial inclusion seem to be sparse and lacking in literature. The current study adds to literature by investigating the influence of social networks on FI, among other determinants, in selected African countries. The study used sixteen proxies for the dependent variable of FI at individual level, using four dimensions in four selected African countries. The purpose of the

current study was to investigate the determinants of financial inclusion, with the emphasis on social networks in selected African countries, namely, the Democratic Republic of the Congo (DRC), Kenya, Eswatini and South Africa.

According to Gwalani and Parkhi (2014:372), financial inclusion is the process of allocating suitable and sufficient financial products that are required by every segment of the population at a reasonable cost. The IMF defined financial inclusion as "the access to and use of formal financial services by households and firms" (IMF 2015:4). Financial inclusion has also been described as a way in which "individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way" (World Bank 2018:1). Reasonable access to all the important financial services implies being financially included, as opposed to the once-off use of formal financial products (Demirguc-Kunt *et al.*, 2013).

Therefore, this study defines financial inclusion as the distribution of suitable formal financial products and facilities to every segment of a society, meeting their savings and convenience needs, and investment and credit requirements at their various financial literacy levels in a responsible and sustainable way.

Another critical aspect of understanding FI is the need to address the robust formulation, implementation and evaluation of policies. This is done by equipping policy-makers with sufficient information, scientific evidence on FI, and learning from previous experiences. Whilst many existing studies used only supply data to determine the factors affecting FI, this study analysed from both the supply and demand sides. The study used data from Finscope Surveys done in the four selected countries.

The expansion of inclusive financial systems has become a high policy priority in many countries. The public policy process in Africa can be viewed at the following three levels: policy-making, policy implementation and policy evaluation (Nutley, 2003; Makinde, 2005; Hai, 2010). The three levels require appropriate information for effective decision-making. Therefore, the present study used sixteen proxies for FI to clarify the aspects that promote the use of formal financial products at any stage. This is to ensure the availability of appropriate products for all segments of the population (Banerjee & Newman, 1993; Gupte, Venkataramani & Gupta, 2012; World Bank, 2013). Although there have been several studies on inclusive financial systems, the

proof that the problem still exists has prompted that more ideas need to be brought to the fore (World Bank, 2013).

The issues of inclusive financial systems are a cause for concern, as more than half of the world's adult population is financially excluded (World Bank, 2014, 2017a). The World Bank (2019) reported that only 34% of adults in Sub-Saharan Africa are financially included. A significant proportion of adults across Africa fall outside the formal financial system because of poverty, costs, travel distance, low confidence in the banking sectors and lack of financial education. Worldwide, only 44% of youngsters are part of the formal financial systems, and about 1.3 billion women are financially excluded (Global Findex, 2019). Global Findex (2019) also reports that about 23% of the adult population earning less than USD2 daily are financially included. Reports also show that Africa has 66% of the adult population that fall outside the formal financial system (World Bank, 2019).

Given the low levels of FI in Africa, there is need to come up with policies that enhance the use of formal financial services. Due to the financial sector facilitating economic growth, the fiscal and monetary authorities of the country have to formulate policies that produce sustainability in development and economic growth. However, many people who would have benefited from formal financial services are not accessing these financial services because of ineffective public policies and the inefficient distribution of financial services.

As such, banking services are public goods; private entities, such as banks, provide these services and charge those who consume their services, but unfortunately, they are also able to exclude others. Investigating the availability of at least the basic formal financial products to the whole population, without excluding some persons was the key goal of the current study. The Bretton Woods institutions (the IMF and the World Bank) have propelled the financial inclusivity programme, revealing the revolutionary capability of FI and its role in eliminating poverty and promoting collective success.

The causes of low levels of FI in Africa can be categorised into demand and supply factors (AfDB, 2013). Demand factors refer to the characteristics of individuals or entities that influence them in terms of accessing financial products and facilities. These characteristics involve levels of income, education and religion, to mention just a few. Supply-side factors refer to the characteristics of financial service suppliers that

hinder individuals from accessing their products and services. These barriers include high bank charges, travel distance and too much paperwork and onerous requirements for accessibility or provision.

There are several versions of the financial inclusion definition that are propounded by individual researchers and institutions. Financial inclusion is defined as "when individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way" (World Bank, 2020:1). In terms of availability of financial services, FI has also been described as "a state in which all people who can use them have access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, and with dignity for the clients" (Centre for Financial Inclusion, 2020:1). As informed by the literature, FI is the delivery of appropriate official financial facilities to all segments of the society meeting their savings, investment, credit, financial literacy levels and convenience needs delivered in a responsible and sustainable way.

Low levels of financial inclusion remain a challenge on the African continent (World Bank, 2020). For the continent to achieve high levels of FI there is need for the reinforcement and assurance of the use of research-informed suggestions or recommendations in policy advice. This strategy will not weaken the authority of the political process but actually strengthen it. The Finscope Surveys, among others, that are done in different countries provide a basis for insight into informed FI policy formulation. However, the statistics themselves are not adequate for robust FI strategies, hence the need for research and other appropriate studies. The need to address these weaknesses in addressing FI issues is one of the purposes for this research. Thus, the following problem was investigated: What are the factors affecting FI in selected African countries? Section 1.2 below provides an outline of the research themes and related questions that the study sought to answer.

The remainder of the chapter is structured into four sections. Section 1.3 considers the research objectives, whilst Section 1.4 explains the significance of the study. Section 1.5 depicts the organisation of the entire thesis, and Section 1.6 concludes the chapter.

1.2   RESEARCH THEMES AND QUESTIONS

While significant proportion of the population in Africa is financially excluded (World Bank, 2017d), there are opportunities to expand formal financial access through robust FI strategies. The absence of accessible and affordable bank accounts in a financial system can result in obstinate income disparity, poverty and sluggish economic growth (Claessens, Evenett & Hoekman, 2010; Rama & Pal, 2012). Low levels of FI in an economy increase the difference between the wealthy and the impoverished because the population is characterised by inequitable growth (Schumpeter, 1911). Low levels of FI also lead to inefficient allocation of funds in the economy (World Bank, 2013). A low FI level exacerbates poverty, and many researchers have found a negative relationship between the two. This is because FI bridges the gap between the source of finance and the needy through the issue of loans, and therefore FI becomes a boost for low-income households.

The absence of formal accounts at individual level may hinder formal savings and accessibility to formal credit facilities. In addition, it can be risky and expensive for individuals to obtain financing from some informal financial services, such as Rotating Savings and Credit Associations (ROSCAs), Accumulating Savings and Credit Associations (ASCAs) and pawnbrokers. With low FI levels, people have to carry huge sums of money, as a large proportion of their transactions are in cash. In such cases, cash finds its way 'under mattresses', and not much can circulate in the formal financial system where the government can benefit from tax. Many African countries experience problems with policy implementation that hinder progress in many facets of economic development (Makinde, 2005). Several initiatives to improve the FI levels in various countries have met with limited success.

A purposive sampling technique was used to select the four African countries for the current study. Initially, 21 Finscope country data sets were considered but some questionnaires left out important variables resulting in them being excluded from the study. The variables required included social networks, financial advice and internet, among others, in each questionnaire. Considering this, four countries, DRC, Kenya, Eswatini and South Africa were selected.

The study's thematised research questions investigated the determinants of financial inclusion, with the emphasis on social networks in four selected African countries. As

a result, the study attempted to answer the following questions, which are categorised into three themes.

1.2.1   Theme I: Testing for differences in the study variables across countries

To determine whether there were significant differences among the four countries, the one-way analysis of variance (ANOVA) test was used to address the research questions as formulated below:

- How does the use of social networks compare across the selected four African countries?

- How do other variables considered in the study compare across countries? The variables include the following: financial inclusion, age, financial advice, internet access, gender, marital status, proof of residence, branch access, location, education, use of mobile phone, monthly salary and income.

1.2.2   Theme II: Determinants of financial inclusion in selected African countries

This theme covered the investigation of determinants of financial inclusion (FI), with the emphasis on social networks using a merged data set. The related research questions were:

- What are the effects of social networks on FI in selected African countries?

- What are the other determinants of FI in the selected African countries?

1.2.3   Theme III: Determinants of FI in each of the selected countries

This theme covered FI issues at country level because of the inherent differences in ICT infrastructure development, and social networks' penetration or use among countries. The related research questions were:

- What are the effects of social networks on FI in each of the selected African countries?

- What other factors influence financial inclusion in each selected African country?

1.3   RESEARCH OBJECTIVES

The following research objectives were formulated for the study to answer the aforementioned research questions:

- To investigate the differences in the study variables across the selected African countries.

- To find the determinants of financial inclusion, with the focus on the influence of social networks in selected African countries using a merged dataset.

- To explore the determinants of financial inclusion with the emphasis on the influence of social networks in each of the selected African countries.

1.4   JUSTIFICATION FOR THE STUDY

This segment outlines the core arguments for pursuing the current study. Subsequent to the study of Martinez *et al.* (2013), this study aims at understanding the dynamics of FI in selected African countries. The need to understand the relationship between FI and social networks, among other factors, also motivated the current study.

The current study on financial inclusion is justified because finance is the lifeblood of the modern economic unit (Sharma *et al.*, 2013). FI facilitates the inclusive participation of all sections of society in the financial sector. The ability to channel funds from excess to needy components of the economy influences the effectiveness of the financial sector. The banking sector has established primary control over a county's wealth, and it is able to place the rudimentary means of production in the hands of pioneers in the high-yielding components of the economy (Schumpeter, 1956:105; Festre & Nasica, 2009). The core of contemporary lending is in the formation of such funds.

According to Franklin, Demirguç-Kunt, Klapper and Peria (2012) and Sharma *et al.* (2014), there are many objectives for the need of FI among all segments of the population. There are economic objectives that are mainly useful for equitable growth in all segments of the society for the reduction of disparities. The reduction of differences amongst the population may serve as catalyst for the growth of underdeveloped and developing communities. The provision of banking facilities to marginalised sections can enhance the mobilisation of savings in the economy. Money

usually kept at home could be effectively mobilised for capital formation, expenditure and economic development. The growth in FI levels improves the development of the financial sector. The larger the financial sector, the more the financial players and participants.

The study on FI is justified, as the majority of individuals on the African continent do not have accounts with formal financial institutions (World Bank, 2020). Advances in ICT and the lowering of the costs related to financial services offer more people the chance to use them, particularly the poor and those that are financially excluded (AfDB, 2017:3). Currently, many low-income people on the continent depend on informal financial services. The absence of official financial regulation can put people in a vulnerable position, for example, they may lose their money or be exposed to moneylenders applying huge interests. The AfDB (2013) notes that the utilisation of unofficial services is widespread all over the continent, and they argue that formal financial services may fail to meet people's requirements or people are not aware of their existence.

One important objective of FI is to reduce poverty in a society. There are high levels of poverty across the African continent. The following statistics related to poverty were reported for the selected African countries (World Bank, 2019) that the current study focused on: in the DRC 73%, Kenya 39.9%, Eswatini 39.7% and South Africa 55.5% of their population was living under the subsistence level. FI bridges the gap between the source of finance and the needy (weaker section) through the issue of loans (Sarma & Pais, 2010). Those in need can get loans to start their own businesses or finance their education to sustain their livelihoods. In such cases, FI becomes a boost for low-income households. FI has also been widely accepted as a promoter of seven out of the 17 Sustainable Development Goals that were set up in 2015 by the United Nations General Assembly (World Bank, 2017c). FI makes political intentions or goals achievable. As the lower strata benefit, certain political objectives are achieved, and an effective direction is given to government policies and programmes.

With the global environment changing, access to formal financial services has been found to be vital (Demirguc-Kunt & Levine, 2008; World Bank, 2018, 2020). The environmental changes motivated the current study to investigate the effects of social networks on access to formal financial services.

The benefits associated with obtaining financial advice to enhance FI provide justification for the current study. Banks often advertise their financial products and inform clients about the benefits of financial advice. Industry practitioners frequently claim that advice influences, among other things, investments, savings, financial product selection and risk tolerance (Montmarquette & Vietnnot-Briot, 2012). Financial advice also enhances peace of mind and financial confidence. A financial mentor not only teaches someone financial knowledge but also inspires someone to make a positive financial decision that improves his/her welfare (Hilgert, Hogarth & Beverly, 2003; Xiao *et al.*, 2004).

Furthermore, financial advice or educational programmes can achieve positive financial behaviour, and positive financial behaviour result in financial gratification (Xiao, Sorhaindo & Garman, 2006). Consumer finance researchers emphasise that there is need to understand how and why consumers change their financial behaviours to take significant positive actions. Therefore, the current study sought to determine the contribution of financial advice to FI levels.

The effect of the internet on FI, using rich cross-sectional data has been inadequately covered in the literature. It is obvious that low ICT development levels in Africa are restricting development on the continent. Although there are many studies on the use of mobile phones to access financial services, these are yet to gain popularity in rural areas characterised by low FI levels. However, having access to a mobile or smart phone does not necessarily mean one has internet access because data is needed to access the internet. The future development and transformation in the financial sector rests on the strategies adopted to foster internet access or technologies. The current study examined the effects of internet access on FI. The nexus between internet access and FI assists in confronting the problems that have negatively affected the African continent for a long time.

The World Bank (2017c) and AfDB's (2017) call for advances in FI, especially in developing countries, justifies the current study. The choice of African countries was motivated by:

- The availability of secondary data for all the variables, including social media, financial advice and internet access at individual level, for these countries.
- African countries rank among the lowest FI levels.

- High poverty levels in Africa.

The question that needs to be asked is: Why does Africa still lag behind in inclusive financial systems? An investigation into the determinants of FI sheds light that can be applied in policy design, implementation and evaluation. The current study is a building block for digital FI.

1.5   STRUCTURE OF THESIS

Chapter 1 presented the introduction and background to the study, introduced the research questions and objectives, and discussed the justification for the study.

CHAPTER 2: FINANCIAL INCLUSION AND ECONOMIC DEVELOPMENT: THEORETICAL AND EMPIRICAL REVIEW. This chapter mainly discusses the theory on inclusive financial systems and economic development. The motive and mode of FI is discussed and deep insight is provided into the FI theories, including their merits and flaws. The chapter clarifies the theoretical and empirical literature behind the link between FI and financial sector development.

CHAPTER 3: FINANCIAL INCLUSION AND FINANCIAL SECTOR GROWTH: THEORETICAL AND EMPIRICAL REVIEW. This chapter presents the theoretical background of FI. The chapter also centres on FI contributory factors and the significance of models relevant to the present study. The effects of FI on economic expansion from a theoretical and empirical viewpoint are discussed. The gaps and deficiencies in the extant literature are stressed, as the novel understanding that was addressed by the current research is spelt out.

CHAPTER 4: RESEARCH METHODOLOGY .The chapter explains the nature of the data and how the study was carried out. It provides more detail on how the research questions were answered and the main objective achieved.

CHAPTER 5: ESTIMATION AND EMPIRICAL RESULTS. The chapter analyses the factors affecting the level of financial innovation, source of financial advice and loan application results in banks in the four African countries. An econometric model is also used to estimate the factors affecting FI in four African countries and the results are outlined. The segment shows the results from the data exploration.

CHAPTER 6: DISCUSSION OF RESULTS. This chapter entails a detailed discussion of the results presented in Chapter 5. The discussion is based on the research questions and tested hypotheses that support the drawing of definite conclusions in selected African countries.

CHAPTER 7: CONCLUSIONS, IMPLICATION AND DIRECTIONS FOR FURTHER RESEARCH. The chapter discusses what the findings mean in relation to the theoretical body of knowledge on FI. The study also discusses the practical implications of the findings.

Figure 1.1 below presents the structure of the thesis.

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│         Chapter 1: Background and Introduction        │
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│  Chapter 2: Financial Inclusion and Economic          │
│  Development: Theoretical and Empirical Review        │
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│  Chapter 3: Financial Inclusion and Financial Sector  │
│  Growth: Theoretical and Empirical Review             │
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│           Chapter 4: Research Methodology             │
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│      Chapter 5: Estimation and Empirical Results      │
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│      Chapter 6: Discussion of Empirical Results       │
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│  Chapter 7: Conclusions, Recommendations and          │
│  Implications for Further Research                     │
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Figure 1.1:   Organisation of thesis

1.6   CONCLUSION

The chapter introduced and provided context to the study. The discussions that followed covered the thematised research questions and objectives of the research. This first chapter also explained the importance of the research, and provided a comprehensive outline of the entire thesis. The subsequent chapter elaborates on the research by comprehensively concentrating on both the theoretical and empirical literature on financial inclusion.

CHAPTER 2:
FINANCIAL INCLUSION AND ECONOMIC DEVELOPMENT: THEORETICAL AND EMPIRICAL REVIEW

2.1   INTRODUCTION

This chapter focuses on the following three areas as relevant to the current study: (1) To lay out a comprehensive clarification of the theories related to the diverse facets of financial inclusion (FI); (2) To clarify the relevant concepts related to financial access and to explain the relationships existing in financial systems; and (3) To review the consequences of FI to economic development.

The theories of inclusive financial systems discussed in this chapter provide a point of focus for tackling the problem of low FI in developing countries. Theories help to identify the point of departure with regard to the research problem and establish a roadmap for directing the problem (Driver & Erickson, 2008). Though the current chapter deliberates on and explains the core theories of FI, its principal drive is to evaluate the theories and to ascertain the factors of significance to the existing study.

The chapter is structured as follows: Section 2.2 provides and overview of FI. Section 2.3 provides and in-depth discussion of the major finance and growth theories, while Section 2.4 discusses the theories related to poverty reduction. Section 2.5 explains the risk management role of financial institutions. Section 2.6 discusses the contribution of financial systems to economic growth that justifies FI. Section 2.7 discusses the distribution of financial resources for development. Section 2.8 presents the various theories of banking. Section 2.9 discusses the role of social network in FI. Section 2.10 highlights the complications that can arise while selecting the most appropriate theories, and Section 2.11 presents the conclusion to the chapter.

2.2   OVERVIEW OF FINANCIAL INCLUSION

There are various theories or sets of guiding principles that are fundamental to FI practice, and that can assist in achieving an understanding of FI as a pro-development initiative in the economics and finance discipline.

There is need for a framework or a set of principles to help us understand what FI is, how it is achieved and who benefits from FI. The extant literature has many idealistic interpretations of how to achieve FI. The literature mostly focus on the link between FI, poverty levels and income inequality, as well as the effect of FI on the economy (Sarma & Pais, 2010; Cull, Demirquc-Kunt & Lyman, 2012; Demirguc-Kunt *et al.*, 2013; Morgan & Pontines, 2014). Theories explain why different ideas exist regarding what the FI objectives should be, and how to raise the levels of FI. Theories also explain the current observations in FI practice and abnormal deviations that exist. This enables a clear and comprehensive system of principles for the development of FI. The set of theories discussed in this section provides a structure of ideas that clarify FI goals, practices and results.

Financial inclusion is a process of accessing and using the financial services that are suitable for the population's needs and that can affect their wellbeing (IFC, 2011). The current notion is that FI is an active and multi-levelled development that gradually improves. The explanation emphasises the notion that the process of FI influences the individual's welfare and demonstrates the benefits of continual improvement, hence FI promotion policies have to embrace elements of consumer protection, financial education and regulation. The theories must be wide-ranging enough to incorporate all the relevant stakeholders and matters, as financial services delivery is not limited to the actions and objectives of financial organisations only.

Bruhn and Bilal (2011) state that there are other issues and actors involved in FI initiatives. For example, factoring firms are not in the same category as banks. These firms assist small organisations unable to access official sources of funds. In such cases, transactions are done predominantly by way of cheques and credit official papers. Other actors in FI initiatives may include non-profit development institutions that may collaborate with the public sector in implementing particular projects, and they may have an array of disparate goals; therefore, flexibility is paramount in granting funding. Therefore, theories of FI should include a wider range of options involving diverse entities.

In summary, an appropriate set of FI theories have to embrace the aspects of obtainability, usage, appropriateness, and accessibility of the financial facilities. A theory also has to capture how sections of the society can benefit from being financially included. In a set of FI theories, common indicators should be traced that include, for

example, access to deposits, savings, direct or indirect investments, loans, money transfers, financial literacy, transaction services, use of social networks and financial advice, among other services. There are different perspectives on FI but the bottom line is having a product that stems from a regulated financial organisation.

An explanation of the different dimensions of FI assists in creating an appreciation for the problems related to policy-making and policy evaluation. Section 2.2.1 below explains the various dimensions of FI.

2.2.1 Dimensions of financial inclusion

The various dimensions of FI include measurements of the different aspects of FI. The various scholars studying the phenomenon have also determined different numbers of dimensions, depending on the area under consideration. Information by dimension helps to understand the problem of FI for policy formulation and evaluation (Sarma, 2012).

Kodan-Kablana and Chhikara (2013) postulate that the dimensions of FI can be categorised into three wide classes, which are Communication Facilities, Defensive Facilities, and Publicity Facilities:

- The Communication services dimension permits the receipt and transfer of money and other basic banking services. These transmission services provide protection for individual participation in society, including their wellbeing and health.

- Defensive services offer financial security in the medium and long term, as well as smoothening consumption. The following services are included under this category: home contents' insurance, life guarantee, private pension requirements, reserves and credit.

- The third dimension includes the promotional services that facilitate autonomy and help individuals promote themselves, with facilities such as loans for starting up enterprises. Publicity services may not be applicable to individuals who are financially excluded because of the exposure and expenditures linked to a start-up (Fisher *et al.*, 1999; Lederle, 2009).

Being excluded from these three areas may have a number of repercussions for an individual and society at large.

Some researchers have used different approaches to study FI. For example, using a sample of 49 countries, Sarma (2012) used the following three scopes of FI: Bank permeation, Obtainability of banking facilities and Utilisation. Similarly, Camara and Tuesta (2014) used the dimensions of Utilisation, Obstacles, and Access to official financial facilities in their study. Some studies used different dimensions of FI but they are similar in one way or the other (see Laba & Kuri, 2011; Bhuvana & Vasantha, 2016). Some may differ in the names they used but the indicators and/or variables used are the same.

However, the literature has not adequately addressed the following: 1) The dimension aspect of technological diffusion in formal financial services delivery, and 2) Utilising social networks on the uptake of financial products.

The absence of regulated financial services may have a negative effect on individuals, for example, being excluded from long-term protective services, such as a pension fund, may have wider repercussions for society because of one's need to be cushioned when there is lack of income. Therefore, FI does not only positively influence economic conditions but improves both individuals' and the organisations' welfare. The dimensions of FI include Obstacles, Bank permeation, Obtainability of banking products, and Access to financial facilities. The level of FI is a determinant of the social status, economic status, and growth of individuals, organisations and countries. Therefore, it is paramount to examine the issues relating to the levels of FI in a society or country to obtain more insight.

2.2.2 Levels of financial inclusion

Individuals have different motives for partaking in the official financial system. Financial inclusion is classified into involuntary FI and voluntary FI (World Bank, 2014). Customs and religious conviction are vital incentive elements influencing indirect accessibility to funds, though non-obtainability, financial ignorance, ineligibility and non-affordability are the main obstacles causing low FI (Behl & Pal, 2016).

Figure 2.1 (on the next page) provides a diagrammatical illustration of the categories of causes of low FI.
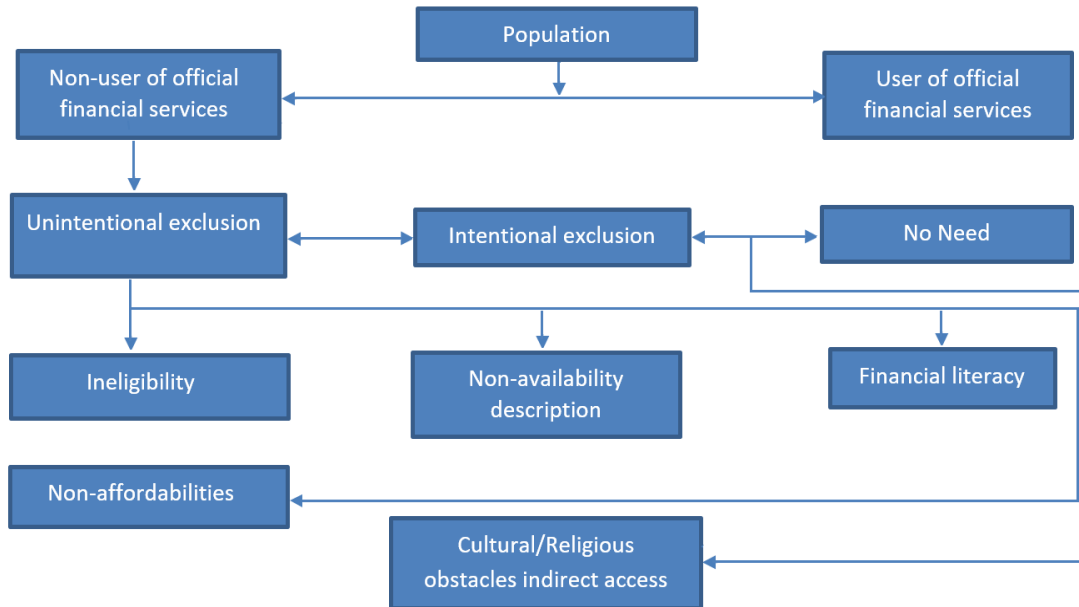
Figure 2.1:   Categories of causes of low financial inclusion

Source: Adapted from World Bank (2014)

As depicted in Figure 2.1, FI has levels and is multidimensional. Consequently, the level of FI is influenced by the use of numerous financial facilities by the individuals. In some countries, a significant number of family units are marginally included, that is, they may have one or two financial products only (called under-banked), while other households do not have mainstream financial products at all (called unbanked) (Saint-Paul, 1992; Sharma & Kukreja, 2013).

These seemingly different situations demand a holistic and robust approach to deal with them. The degree of FI in the country is vital in the transformation matters related to financial markets. Across Africa, the degree of FI is extremely low, and when it occurs, it is confined to a minority of the populace.

For the purposes of the current study, FI theories are divided into the following five categories: Finance and Growth, Risk Management, Financial System Efficiency, Poverty Reduction Theories, and Banking Theories, that are discussed in the sections below. The review of key literature and the mapping of the chapter unfold as depicted in Figure 2.2. The figure shows the initial scholars (in bold) of the FI theories and empirical theoreticians who concurred with the theories. The source, empirical theoreticians who concurred or varied the FI theories are depicted in Appendix 2a.
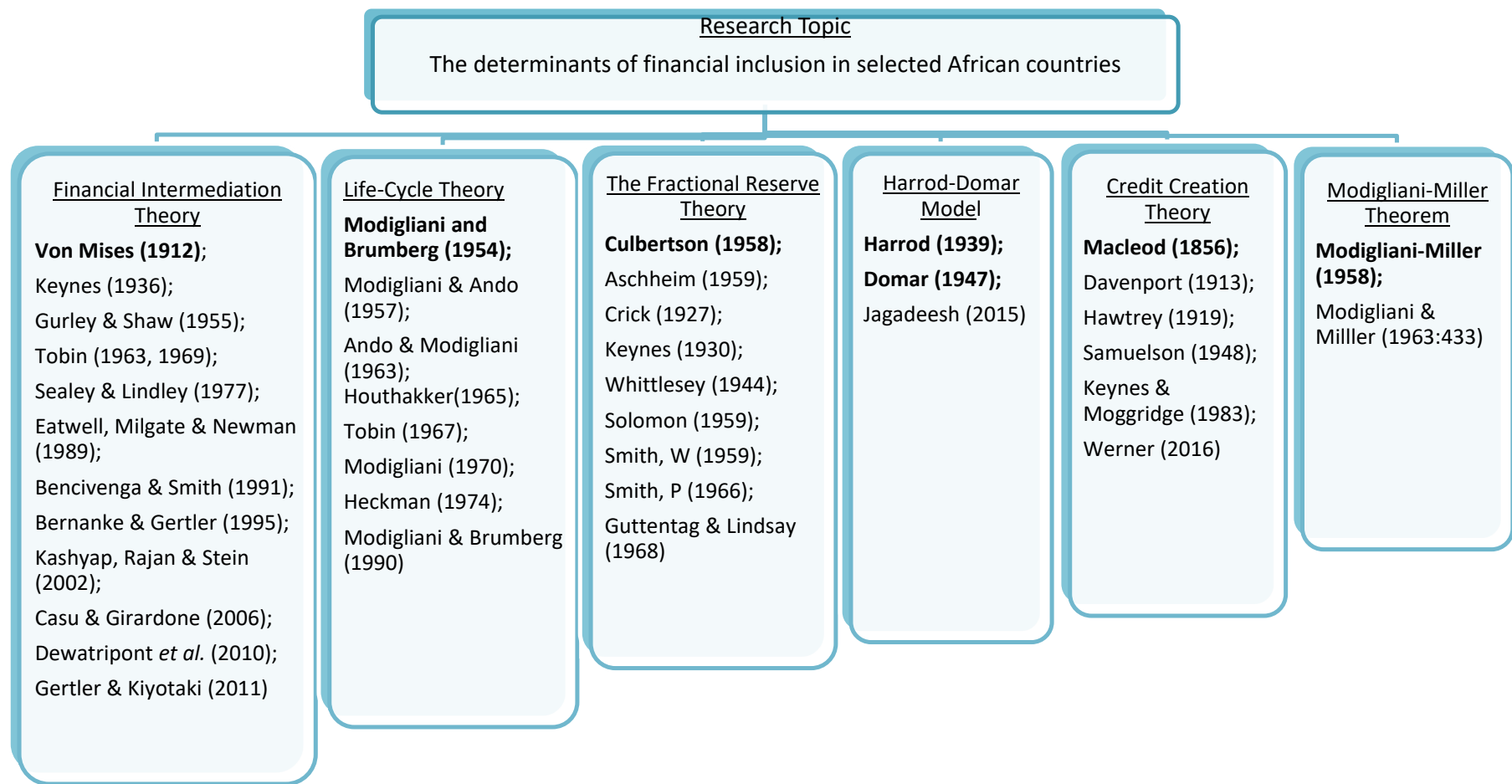
Figure 2.2: **Key theories discussed in literature review**

2.3   FINANCE AND GROWTH THEORIES

This section discusses the key theories of development. The discussion includes the purpose of FI and its contribution to the financial sector and economic growth.

2.3.1   Purpose of financial inclusion

The Harrod-Domar Model serves to explain the economic development determinants, and the crucial role played by savings and investments. The Harrod–Domar Model is a classical Keynesian Model of economic development. According to the Harrod-Domar Model, the main strategy for economic development is savings mobilisation and the generation of investment (Harrod, 1939; Domar, 1947). The model affirms that savings result in investments that, in turn, result in economic growth. Harrod and Domar argue that the economic development proportion is determined by the levels of savings in the economy and the capital-output ratio.

For its part, the main purpose of FI is to harness savings through financial intermediaries and to direct the funds to the productive sector to enhance economic growth (World Bank, 2017c). In a study investigating the influence of savings on economic expansion in Botswana, Jagadeesh (2015) applied the Harrod–Domar growth model, based on Auto Regressive Distributed Lagged (ARDL). The study investigated the presence of a long-run association between the Gross Domestic Product (GDP) and Gross Domestic Savings, and found a substantial association between savings and economic expansion in Botswana. The study found the Harrod-Domar Model was applicable to the nation's economy. The emphasis of savings in the model makes it important for the justification of FI studies.

However, the Harrod-Domar Model has a number of shortcomings, which include that increasing the savings ratio in developing countries is not easy (Nurkse, 1953). Several developing countries have shallow financial sectors with limited financial assets/opportunities (Morgan, 1969) and it is difficult to achieve financial system efficiency in developing countries (Boianovsky, 2015). The situation is exacerbated by the fact that in many developing countries, research and development is underfunded to allow savings to be effectively converted to investments for economic growth purposes. Borrowing money from abroad causes external debt repayment problems or creates a debt trap, in the end. A rise in capital spending does not always lead to

economic growth (Siraj & Bengali, 2007). In light of the aforementioned, a question that remains unanswered is what determines the level of savings?

2.3.1.1 Contribution of FI to financial sector and economic growth

It is vital to clarify the significance of FI in the growth of the financial sector, the economy, as well as the welfare of individuals. All over the world, there is heterogeneity with regard to FI. The requirements related to financial facilities differ from person to person and one country to another (Kempson & Whyley, 1999; Speak & Graham, 2000; Regan & Paxton, 2003). Currently, however, in terms of developing countries, one option is to foster inclusive growth, and FI is the key to achieving this.

There are two major reasons why the current socioeconomic development agenda targets wide access to formal financial facilities as a possible solution. One of the reasons is that both the theoretical and empirical literature have revealed that an inclusive financial system is imperative for poverty alleviation and economic growth (Beck, Levine & Loayza, 2000; Honohan, 2004a; Beck & Torre, 2006; RBI, 2008). The second reason is that financial facilities are a public good that enables individuals to enjoy the benefits of a modern, market-based economy (Peachey & Roe, 2004). Hence, the current study is crucial in the development of a conceptual framework and the identification of factors influencing FI.

Researchers have noted that integrity, stability and financial inclusion are complementary factors. The central banks need to strive to improve the regulatory framework and coordinate the various stakeholders involved in the provision of financial services (Agenor & Pereira da Silva, 2013). This study is guided by the principle that finding and coordinating the devices for FI is necessary in the reduction of social inequalities and in enhancing economic development (ADB, 2013; World Bank, 2014, 2017b). The systems may yield a 'domino effect', as the additional accessibility to official financial services may encourage higher savings and funding. This sequentially enlarges the secondary sector, as well as contributing to economic development (Sharma & Kukreja, 2013).

In terms of economic development, inclusive financial systems elevate a country to a higher growth trajectory. Furthermore, inclusive financial systems reduce inequality and promote economic growth and poverty alleviation, as has been stated before in this study. The provision of financial services to all segments of the population helps

to overcome a range of constraints that hinder growth at individual and country level (Kodan-Kablana & Chhikara, 2013). Some of the constraints may need intervention, as they may be specific to individual or institutional shortcomings.

An all-encompassing financial structure assists in reducing the development of unofficial sources of finance, such as exploitive moneylenders (Bell, 1990). In contradiction with this view, in his theory on moneylenders, Madestam (2014) postulates that the formal and informal credit segments of an economy can be complementary or substitutes (Madestam, 2014). In the study, Madestam poses a pertinent question of why banks do not merge with moneylenders, with the latter being the local branch manager. He argues that formal banks have unlimited access to funds but they are not able to control the use of loans. Justifying the existence of informal lenders in the sub-economy, Madestam argues that moneylenders are able to prevent non-diligent behaviour, although they often have capital constraints.

Traditional development economics emphasises that wealth redistribution is the route to growth and development (Bardhan, Bowles & Gintis, 2000). However, many studies in various developing countries have revealed that moneylenders are largely exploitative, and thereby hinder growth. The literature also reveals that an inclusive formal system of financing is the panacea for economic development.

The initial theories of economic evolution acknowledged institutions, labour and finance as the determinants of economic development, ignoring the role of the financial sector. The ignorance was due to the Modigliani-Miller Theorem and the Efficient Market Hypothesis. Both theories made assumptions that the financial system is flawless and has no defects. Therefore, the financial securities market is perfect, which means that traders acquire and dispose of financial securities with no transaction costs (Modigliani & Miller, 1958). The weakness with this theory is that it cannot be applied in the real world (Stern & Chew, 2003). Additional criticism is levelled at the assumption made by Modigliani and Miller that individuals and firms borrow at the same rate of interest, which in practice is not the case (Ahmeti & Prenaj, 2015). This is so because firms and individuals who have fixed assets have a higher credit rating (UK Essays, 2013).

An optional growth strategy would be to regard financial market deficiencies as a complement to the redistributive policies for growth promotion, poverty reduction and

sustainability. To ensure the sustainability and acceleration of growth, all the segments of the population should participate in the process (Hannig & Jansen, 2010; Han & Melecky, 2013; Morgan & Pontines, 2014). Therefore, proper FI would lead to more savings and faster economic growth, as shown in Figure 2.3 below.
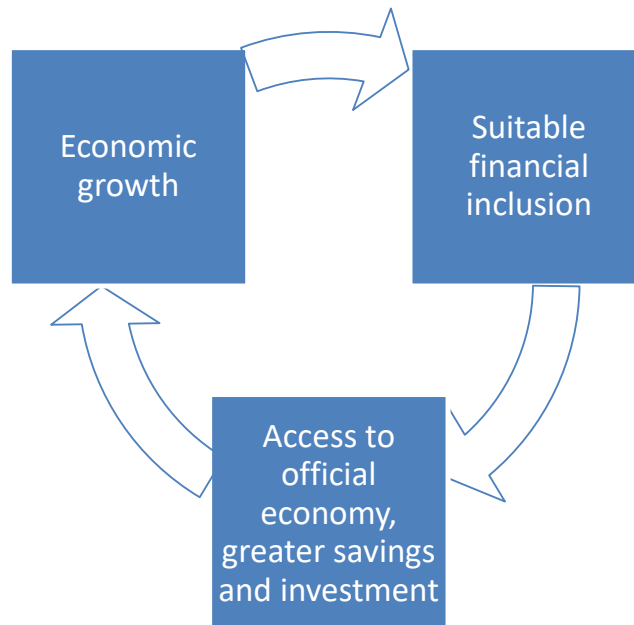
Figure 2.3:   Financial inclusion virtuous cycle

Source: Central Bank of Brazil (BCB) (2011)

There is a traditional view that FI is merely having access to funds, but it is far more than this. There is a collective need for payments, savings, transfer services and availability that permits less advantaged social groups to develop and have sustainable incomes (Khan, 2011). Access to formal financial services helps people to become more resilient to economic shocks (Park & Mercado, 2015). FI has a propensity to influence the financial sector by encouraging the contribution of advanced products, and highlighting the prospects of providing specific facilities through Microfinance Institutions (MFIs). The MFIs target sections of the populace excluded from the established or existing financial system.

If people can access suitable financial products and services, they tend to save (World Bank, 2006). In contradiction with this view, Divya (2014) and Babu (2015) argue that lack of savings is largely associated with financial illiteracy. However, according to esteemed scholars, such as Demirguc-Kunt, Klapper and Singer (2017), and Zins and

Weill (2016), lack of savings is due to low-income levels. In addition, access to financial services also improves individual financial security (Potrich, Vieira & Kirch, 2015).

For broader financial access to be effective, financial products need to be tailored and services must be available when needed under affordable conditions, for example, credit facilities should not only be available to those borrowers with collateral, connections and a good track record. Therefore, there is need to discuss the literature on the contribution of innovative activities to financial and economic development.

2.3.1.2   Financial inclusion and innovation

Agenor, Canuto and Jelenic (2014) stress the role of FI in supporting innovative activities that can assist countries to rise to high-income status. Although this assertion mainly applies to firms, individuals with brilliant ideas or talent have no source of funds if unbanked (Beck, Senbet & Simbanegavi, 2014). Lack of access to finance has hampered many individuals from innovation opportunities and growing their wealth.

A body of empirical research buttresses the association between FI and innovation. The literature suggests that financial exclusion retards innovative activities in both developing and developed nations (Ang, 2010, 2011; Ayyagari *et al.*, 2011). Contrary to this finding, Agenor *et al.* (2014) argue that in developed countries, it is more about sufficient enticements motivating individuals to engage in entrepreneurial activities, than financial access. However, studies have shown that access to formal finance can have positive effects on innovation investment at individual, corporate and country level (Urzúa, 2013), as experienced in Latin America.

In addition to formal financial access, other factors come into play to boost the economy's ability or capacity to grow. Among them are macroeconomic stability, high financial literacy, and openness (Gill & Kharas, 2007). Though the aforementioned foundations are not the focus of this study, it is worth noting them as drivers of economic growth.

Aggarwal (2014) asserts that small savings by poor people can provide a lump investment to business for capital purposes. The pooled funds used for productive activities can thereby open up employment opportunities for many (Khan, 2011). FI for all makes electronic transfer of social benefits, savings and investments possible. Aggarwal postulates that the distribution of financial services in convenient places or through the use of convenient delivery channels reduces the cost of accessing

financial services. An inclusive financial system enables the banking sector to serve across several segments of the society not limited to gender, income levels, and regions, thereby encouraging the public to embrace proper banking habits (Demirguc-Kunt *et al.*, 2017; Wright, Chopra, Mehta & Shukla, 2013). With high FI levels, growth and development improves quickly among the needy sectors.

The poor would be able to achieve their goals if they have access to financing facilities. Several studies have established the effect of accessibility and the availability of formal finance on poverty mitigation. According to Banerjee and Newman (1993) and Vashisht and Wadhwa (2015), access to funding is a vital element enabling people to improve their welfare. Khandker (1995) also observed a significant improvement in the welfare of a rural Indian community through a financial services provision expansion programme. The programme also significantly increased non-agricultural employment.

Eastwood and Kohli (1999) reported that expansions to the physical networks of banks and selective advancing of banks enhanced small-scale industrial output. In a study of India, Bell and Rousseau (2001) established that the banking sector players influence economic performance. The accessibility and ease of use of official financial facilities remains an ingredient of economic growth. The capacity to direct funds from surplus units to the high yielding section of the economy determines the efficiency of the financial system.

The significance of FI to the economy is demonstrated by the attention the issues are getting from governments and other international bodies, such as Breton Woods' institutions (Demirguc-Kunt *et al.*, 2017; Frost & Sullivan, 2009). Banking facilities are a common good, regardless of the degree of 'publicness' that is different from typical public goods. Mehrotra, Puhazhendhi, Nair and Sahoo (2009) argue that banking facilities are as vital as access to water and basic education.

In many countries, banking services are classified as a 'quasi-public good'. This perspective has prompted governments, scholars, researchers and developmental organisations to design FI strategies. The focus on inclusive growth as an economic growth strategy ensures that the gains of economic development are equitably shared (Chakraborty, 2010). The view that FI is a powerful mechanism for poverty mitigation and enhanced production has caused it to be prioritised by governments.

The literature has satisfactorily covered the purpose of an inclusive financial system, though with varying empirical results as discussed expansively in the subsequent sections of this thesis. However, the literature has not adequately covered the following: (1) How high levels of FI can be achieved in different countries, regions, cultures, and so on; (2) The determinants of disparate levels of FI at individual level, countries and regions; and (3) Proper models of FI that suit different country development and individual income levels. Therefore, it was important for the current study to discuss theoretical and empirical studies that investigated the link between financial development and economic growth.

2.3.2 Financial development and economic growth

Research studies that investigated the link between the financial system and economic growth do exist. There are a multitude of academic studies on the conceptualisation of how economic improvement and the state of a country's financial sector influence domestic savings, capital accumulation, changes in technology and increase in income, or vice versa. The papers also investigated the relationship that includes identifying the nature of the causality and its relevance with the use of different data (see Honohan 2004b; Andrianova & Demetriades, 2008; Levine, 2012).

However, there are differing views among scholars and researchers with respect to the function of an inclusive financial system in economic development. Historically, Bagehot (1873) and Hicks (1969) contend that the financial sector significantly contributed to England's industrial revolution by enabling the raising of funds for the productive sector. Schumpeter (1912) argues that a robust banking sector spurs technological development by locating project owners with the highest prospects of effectively executing novel production methods.

On the contrary, Robinson (1952:86) holds a different view, and maintains that where venture leads the way, finance follows, not the other way round. In this perspective, economic evolution generates the needed forms of financial structures, then the financial sector reacts to the demands. Furthermore, some analysts do not support the notion that the finance-growth relationship is significant. In concurrence with Robinson (1952), Lucas (1988:6) states that some financial experts overrate the contribution of financial systems to economic development. In addition, some developmental analysts are often doubtful with regard to the function of the financial sectors and do not

consider it relevant (Chandavarkar, 1992). The role of the financial sector in growth has been ignored in many studies. These include the studies of Meier and Seers (1984) and Stern (1989), where there was no mention of the financial sector.

The need to transact and acquire information creates inducements for the growth of financial players and securities. Arrow (1964) and Debreu (1959) propounded a conditional claim structure without evidence and operational expenses. The Arrow-Debren model, advocates a financial system that does not waste resources on research projects and risk management exercises, and does not scrutinise managers to enable transactions. Any theory that considers the crucial role played by the financial system in economic development contradicts the Arrow-Debreu model, whether implicitly or explicitly. Financial markets and players may grow in response to the challenges brought about by information and transactional frictions. Furthermore, different types of problems prompt well-functioning and distinct financial institutions, products and players.

To reduce business and evidence expenses, an inclusive financial structure serves one primary purpose, which is the facilitation of resource allocation, over space and time, in risky environments (Merton & Bodie, 1995:12). The prime role of a financial system is classified into different basic tasks (Levine, 1997), which include the following:

- mobilising savings,

- facilitating trade, hedging, diversifying, and pooling risk,

- allocating resources,

- facilitating the trade of products, and

- keeping track of supervisors and exercising business control.

The section below provides a further analysis of the two channels, namely, technological innovation and capital accumulation. Through these two channels, the function of the financial system in economic development is enhanced.

2.3.2.1   *Technological innovation and capital accumulation*

The first category is a category of development models that uses either capital expansion or capital commodities derived through the utilisation of constant incomes to scale, but that do not use irreproducible factors to create a stable per capita increase

(Romer 1986; Lucas, 1988; Rebelo, 1991). In this class of models, the roles played by the inclusive financial systems influence economic growth by prompting the rate of net capital accumulation. Capital formation is influenced by a shift in the degree of savings or by the reallocation of reserves in capital-generating technologies.

The next class of growth models centres on technological innovation. These look at the development of innovative production methods and commodities (Romer, 1990; Aghion & Howitt, 1992). The models influence stable economic growth by shifting the speed of technological advancement. However, there were scholars with counterviews on the emphasis of innovations in economic development, especially Schumpeter (1911). Firstly, they maintained that innovation is mostly useful in the development of capitalism. In addition, innovations are among a mirage of factors affecting cyclical instabilities in a capitalistic economy (Robinson, 1952). Moreover, differentiating innovating activities from the normal business activities is a challenge.

These days, innovation activities are part of everyday business and there may not be need for a special agent, such as an innovator to carry out activities. Lucas (1988) is of a different view, as he argues that Schumpeter overemphasised the role of the innovator in his model. Schumpeter also regards innovation as the lead factor in economy development. This position has been criticised based on economic development and other economic and social factors.

Where some information and transaction costs are present, the inclusive financial system plays a crucial role in the hedging, trading and pooling of risk. The types of risk managed at that level include liquidity and idiosyncratic risk. Schumpeter assumes that technological innovations are supported by bank credit, and the assumption is not convincing (Hagemann, 2003). Usually, banks provide short-term credit facilities, as it actually transpired in Germany, but it is not applicable to many other countries. This theory leaves out some important sources of real savings, such as public borrowings, deficit financing, budgetary savings and other fiscal methods (Schutz & Rainer, 2016). Hence, the need to discuss the nexus between liquidity, FI and development.

2.3.2.2 *Role of liquidity on financial inclusion and sector development*

Liquidity is the speed at which the holders of assets can transform them into buying power at arranged prices (Fethi & Katircioglu, 2015). For example, land and buildings are less liquid than stocks. Uncertainties in the conversion of properties into

purchasing power gives rise to liquidity risk. Information asymmetry and transaction costs play a critical part in influencing the degree of liquidity risk. These market frictions prompt the creation of new financial products and players that enhance liquidity.

Therefore, liquid financial markets will make financial assets' transactions relatively inexpensive and there will be little uncertainty on trade settlement. The relationship between liquidity and economic growth emerges from the existence of high-yielding projects requiring long-term capital, but savers may not be in a position to commit their funds for longer times. If the financial structure does not provide the liquidity for longer tenor investments, the establishment of high-return projects are unlikely.

Hicks (1969) argued that financial market developments that reduced liquidity risk prompted the industrial development in England. As stated by Hicks, the financial facilities offered in the initial stages of industrial revolution had previously existed. Therefore, it follows that technological advancement did not prompt sustained economic development. The existing inventions required large long-term capital injections, coupled with savings from all possible sources. The major ingredient that influenced the industrial development in the eighteenth century in England was a high level of liquidity.

In liquid capital markets, assets held that include bonds and equity are easily converted. Concurrently, these capital markets convert the short liquid financial instruments into long-term investments that are important for industrial production requirements. As the industrial revolution in England required long large capital commitments of capital liquidity, transformation was a prerequisite. The industrial revolution could not have taken place without financial market development (Bencivenga, Smith & Starr, 1995:243). In recent times, economists have modelled growth inclusive financial systems in reaction to liquidity uncertainties, and have investigated the influence of the capital markets on economic development.

The Influential Model of Liquidity propounds that some investors experience crises having made a choice between two investments that are either: 1) Liquid, low return, or 2) Illiquid, high return projects (Diamond & Dybvig, 1983). The investors experiencing shocks require their savings before the project, that is, illiquid before starting production. The uncertainty creates an incentive for investing in projects that are relatively liquid but with a low return. This model assumes the methods to see if

an individual saver has received a shock(s) that is too costly. The prohibitive costs of information have ignited the growth of financial markets for the facilitation of trade, whilst ruling out state-contingent insurance contracts.

Those savers experiencing shocks are able to trade shares on the gains of the illiquid production equipment ventures (Levine, 1991). In such scenarios, market participants may not be worried about the shocks of other parties but trade through independent stock exchanges. Therefore, with inclusive liquid equity markets, participants can readily buy or sell their shares, and then the productive sector has permanent access to the capital. In the facilitation of trade equity, markets reduce liquidity risk. In addition, the reduction in transactional costs causes greater investment in the illiquid and risky high-yielding investments. Quicker steady growth is experienced, as illiquid projects will have adequately large externalities.

Conversely, the theory indicates that greater liquidity has an unclear effect on savings and the development of the economy. The majority of the models suggest that more liquidity improves investment returns and reduces risk. Greater returns have no direct relationship with saving rates because of some income and substitution effects, and lower risk somehow influences the saving levels (Levhari & Srinivasan, 1969). This entails that fluctuations in savings may still result in the rise of liquidity levels.

In models that have an expanse of physical assets, the deposit rates may tumble as development slows down with higher liquidity (Jappelli & Pagano, 1994). Inclusive financial systems can also reduce the uncertainties related to particular regions, projects, countries, firms, industries, and so on. It is important to note that mutual funds, equities' markets, and banks provide instruments for pooling, trading and spreading. Resource allocation and savings are the prerogative of an inclusive financial system, as the system provides risk management services that have an influence on long-term economic development.

The risk reduction abilities of the financial sector tend to encourage the movement of funds toward higher yield investments (Devereux & Smith, 1994; Obstfeld, 1994). Risk diversity may influence the technological revolution, as financial players continuously leverage technological advances to gain profitable market niches. Furthermore, novelty in production methods involves uncertainty but having a spread portfolio of ground-breaking projects lessens exposure, and the investment in growth-enhancing

projects is improved. A highly developed and efficient financial sector that reduces risk accelerates technological changes, hence leading to steady economic growth (King & Levine, 1993a).

According to Bagehot (1873:53), in the 1800s England's financial system identified and funded profitable projects better than other countries and that resulted in it enjoying superior economic growth. Financial intermediaries also have a crucial role to play in screening or identifying entrepreneurs with high prospects of succeeding in their novel ventures (King & Levine, 1993a). As postulated by Schumpeter (1912:74), financial intermediaries are not necessarily 'middlemen' but encourage and support innovators in the society. As equities' markets develop, the acquisition and dissemination of information become almost automatic, thereby incentivising participants (Grossman & Stiglitz, 1980). The developments can also be catalysed by a wide pool of savings (total financial inclusion), contributing to the financial markets' liquidity.

As markets become liquid, it becomes easier for market participants who acquire information not to disclose their identity and make money (Kyle, 1984; Holmstrom & Tirole, 1993). The easily cash convertible equity trades stimulate financial resource mobilisation and allocation resulting in economic development (Merton, 1987). With a greater number of market participants (high FI levels), the equities' market becomes more efficient. Therefore, more individuals need to participate in the financial system for efficiency objectives, which must be the drive in many African countries.

The existing theories have not established links from equity trade to data procurement, and ultimately, long-term economic development. However, participants that are not concerned about evaluating still benefit from that aggregated and disseminated information through published stock prices. As long as the financial system is inclusive and efficient, equities' markets speedily make public information available through posted prices (Stiglitz, 1985). For individual investors, it becomes irrational to expend finances to attain information that is available to the public immediately.

Financial intermediaries support the efficient separation of management from ownership. According to the comparative advantage principle, efficient specialisation in production is possible through the separation of ownership from management (Merton & Bodie, 1995:14). In contrast to this arrangement, the debate is still ongoing

about who will keep track of the monitor (Krasa & Villamil, 1992). It is not possible for the savers to monitor an intermediary with a well-diversified portfolio, as long as they get their interest on deposit. In addition, when financial intermediaries and firms pursue long-run relationships, the costs of obtaining information can further be reduced, thereby enhancing better resource allocation (Sharpe, 1990). The financial measures that seek to improve corporate control encourage fast capital mobilisation and its allocation (Bencivenga & Smith, 1993).

However, equity markets promote corporate control (Jensen & Meckling, 1976). Firms listed on the stock exchange may efficiently reflect the firms' information on their stock prices. If share performance is linked to managerial compensation, this will help align the interests of executives to that of stockholders (Diamond & Verrecchia, 1982; Jensen & Murphy, 1990). It can also be argued that if managers of underperforming companies are sacked as a consequence of a takeover, developed equity markets would prompt corporate control to avoid takeovers. The possibility of company takeovers is also an incentive for managers to work hard (Scharfstein, 1988; Stein, 1988). However, there is a scarcity of structures directly linking the function of the equities' market in improving corporate governance to economic development.

The pooling of funds from different savers results in capital availability for investment purposes. In the absence of a multitude of savers, several production processes become economically inefficient (Sirri & Tufano, 1995). Moreover, the amassing of deposits comprises the formation of financial assets that give smaller investors a chance to diversify their investments. Households and individuals are then able to invest in efficient scale companies, thereby increasing asset liquidity, and hence, contributing to economic growth. Mobilising the savings from different depositors enhances risk diversification, the size and efficiency of the financial system, and the sizes of projects (Sirri & Tufano, 1995).

The savings mobilisation role played by financial intermediaries is costly, as there are transaction and informational asymmetries to overcome. However, it is expensive to amass savings from a multitude of different savers. Banks play a pivotal role in the reliable raising of capital and production processes, and an example is the account of Investment Banking in America (Carroll *et al.*, 2000), through which, some merchant banks in the United States (US) collaborated with European strategic partners to mobilise funds from out of the country for production purposes in the US in the 1980s.

Major banking players focused on mobilising capital with other banks and industrialists by offering securities to households. It is evident that financial intermediaries must ensure high levels of reputation and sound government backing for depositors to entrust them with their savings (De Long, 1991; Lamoreaux, 1994).

In any financial system, measures that reduce transaction costs enable promotion, focus, industrial revolution and development. In 1776, Smith expounded this relationship in the book entitled *Wealth of Nations*. In his book, Smith (1776:7) claimed that the specialisation of the workforce is the primary variable fundamental to productive developments. More specialisation entails that the labourers are highly likely to invent more efficient machinery and come up with better production processes. Smith maintained that lesser transaction costs gives rise to specialisation, as it needs a greater number of transactions than a self-sufficient environment. Smith articulated his argument in light of the advantages of the use of financial intermediaries over barter. The costs involved in the evaluation of goods in barter exchange motivate the emergence of money. Thus, a medium of exchange facilitates trade (Williamson & Wright, 1994; King & Plosser 1986). The use of innovative payment channels lower transaction and information costs, which means that such developments enable ingenious persons to focus and be more efficacious at discovery (Lamoreaux & Sokoloff, 1996:17). The reduction of the transaction and information costs causes monetary and institutional development that boosts special focus and creativity through similar mechanisms, as explained more than 200 years ago by Adam Smith.

In the context of underdevelopment, the Schumpeter theory proves to be inadequate. In underdeveloped countries, the class of innovators is very small, due to the small extent of the market and the low expectation of profits. Schumpeter mentioned private innovators as the prime mover of economic expansion, but in the majority of the poor nations, the government is the biggest innovator (Solo, 1951). Schumpeter believes that economic and social development is dependent on domestic (internal) forces. The majority of developing economies depend on imported technology, foreign direct investment, joint ventures, and so on. In developing economies, exogenous forces play a huge role in determining the pace of development in the initial stages (Elliott, 1985). In addition, the developing countries have a population growth strain to grapple with, which Schumpeter did not consider in his analysis (Thanawala, 1994). Population

growth issues continue to cause social, economic and political complications that retard the development process.

Contemporary theorists have endeavoured to explain with better accuracy the links in exchange, specialisation and improvement (Greenwood & Smith, 1997). Lower transaction costs facilitate specialisation, thereby promoting productivity gains. A feedback from these gains to the financial markets may occur. When fixed expenses linked with the market establishment remain, the greater earnings per person entail that the fixed expenses become less taxing.

Economic development spurs novelty and expansion in the financial markets. The method of relating financial sectors with speciality has not officially wrapped Adam Smith's account of improvement. According to Greenwood and Smith (1997), a market that has reduced business expenses fails to motivate the discovery or innovation of novel and improved business operation processes. In contrast, lower business expenses increase the number of considerable creative technologies that are economically viable. A more developed market is the key to producing and sustaining specialised production methods. However, the model does not clarify how the development of financial markets lowers transaction costs, thereby enhancing the stimulation of specialised production technologies.

The literature has not adequately covered the following: (1) The role of technological development in advancing inclusive financial systems; (2) How the financially excluded can be lured into the official financial system, as well as contributing to poverty reduction; and (3) The factors determining high levels of financial development.

In light of the contradicting opinions, this study utilises current theory to organise a logical context for the inclusive finance-development relationship and then establish the factors influencing it. Therefore, it is imperative to examine the different theories linking monetary expansion and poverty elimination.

2.4   POVERTY REDUCTION THEORIES

The theories of FI and poverty are linked to different policies to improve comprehension. It is imperative to note the differences in the literature regarding the remedies, explanations, conceptions and measurements of the problem.

Any poverty reduction policy should include a clear description of the causes of poverty. However, explanations of poverty and impoverishment possess an implied recommendation and formulation that contain an implicit account of the occurrence. The following poverty theories are discussed in the below section: The Minority Group Theory, Orthodox Economic Theory, Classical Theory, and Functionalist Approach.

2.4.1 The Minority Group Theory

The Minority Group Theory that emanated from the early studies represents an attempt to find the features of particular categories of impoverished individuals in those studies. In his study, Rowntree did not attempt to find the eventual determinants of lack, but instead outlined the instantaneous reasons for destitution. Rowntree also did not discuss how poverty could be reduced. The causes of poverty mentioned are as follows: size of family; death of head of family; unemployed wage earner; incapacity of head of family; sickness or old age; irregularity of work and low wages (Gordon, 2006:34; Rowntree, 1901:119).

Rowntree acknowledged the vicious cycle of poverty that applied to children, old people and young partners with children. These, he identified as having the highest risk of plunging into poverty. The classification used by Rowntree epitomised an important advance, and influenced policies related to the provisional wellbeing for those with the least income, and for the vulnerable such as the sick, unemployed and aged. It was important to indicate the causes of poverty and identify the different categories. The advocates of the minority theory maintained that the notion of groups has an essential place in the development of theory, and the definition of the smaller segments was the chief purpose of the study (Grogger, 2009; Bane, 2009; Pantazis, Gordon & Levitas, 2006).

One weakness of the Minority Group Theory is that it did not go further in identifying the possible remedies for high poverty levels. A gap exists in terms of the role of an all-encompassing financial structure to reduce or eliminate impoverishment. In addition, there is a gap regarding the use of latest communication technologies or social platforms to enhance inclusive growth in a country.

2.4.2 Classical Theory

In the last few decades, the occurrence of lack was introduced in theoretical economics. In the Classical Theory, the focus was on the total distribution of incomes, wages and rent (Grogger, 2009; Narayan *et al.*, 2009). For example, Ricardo identified the following as the major challenges of economic science: the distribution of the global harvest classified as the proprietor of the land, the stockholder, funds important for farming, and the workers in the sector.

A more thorough challenge to classical theory emerged in the 1930s and 1940s through the work of John Maynard Keynes. Keynes thought that free-market economies tended toward under-consumption and under-spending. He called this the crucial economic problem and used it to criticise high-interest rates and individual preferences for saving.

2.4.3 Orthodox Economic Theory

Orthodox economists believed that a balanced budget was the key to economic growth. The Orthodox Economic Theory has been criticised for not paying attention to and explaining the sharing of private earnings and the association of individual earnings and total portions of wages, rentals and profits (Gordon, 2006; Grogger, 2009). Lately, the focus has been on the disparity of earnings' distribution. Economists and scholars preferred to focus on the factors influencing individual earnings in family incomes in the explanation of disparity. Earlier studies concentrated on identifying the form of distribution or shape of the curve, and the three conceptions developed include the normal, the lognormal and Pareto (Rose, 1972:13; Webb, 1926:177). Pareto argued that the disparity in the income distribution in different countries and historical phases was remarkably similar.

There are noteworthy differences in theorists' perspectives regarding the application of the Orthodox Economic Theory to poverty and income distribution. The theorists assumed perfect competition and market equilibrium to be those that emanate from the market practices of progressive capitalist economies to demonstrate a robust association between marginal productivity and wages. As postulated by Thurow (1969, 1981), a person's earnings are insufficient when the yield is not enough. In other words, if productivity goes up, so does income. The weakness of this school of thought is that the ingredients of productivity were limited to education, skill and experience.

There was no mention of entrepreneurship, nor the sources of finance or an inclusive financial system, which are vital ingredients to income levels. Posner (1973) criticised this theory as having no basis in economics for the argument of economic justice that was put forward. However, the Orthodox Economic Theory was built on the typical hypothesis of supply and demand by allowing an explanation of the productivity features of the labour provided.

The determination of major economic philosophers can gain from a broader view approach. Working on the supposition that problems related to the explanation of inequalities in income and asset distribution, which is in monetary terms, is the preserve of economic theory, sociologists concentrated on disparities in wages or occupational status and focused less on power. Income and occupational status also contribute to financial or social inclusion or exclusion (Trivelli, 2013; Pantazis *et al.*, 2006; Schorr, 1964).

However, there are still gaps in the literature, as theoretical and empirical work has diverted from complementing the first work on the concept of economic class by Marx and continued with excessively common and vague studies. There are many studies on economic classes but little is discussed on the emancipation of poverty or promoting the poor, and the use of communication technologies for the amelioration of information asymmetry in advancing financial and social inclusion. For example, the background philosophies of Marx and Weber are of ongoing significance, albeit limited to explaining the degrees of inequality in a society.

2.4.4 The Functionalist Approach

In explaining issues to do with poverty and inequality, some sociologists have used the 'Functionalist' Approach which agrees in philosophy and universal expectations with the Conventional Economic theoreticians. The approach also reveals the assumptions put forward in political deliberations by elites about worth and deserts. The approach is grounded on variances conjectured in the practical significance of diverse professions. The scholars, Talcott Parsons, Kingsley Davis and W.E. Moore advanced the philosophy from 1940 to 1945, where after Levy and Barber further developed the philosophy.

The theory begins by indicating the existence of different social positions or statuses in all societies. The positions and status differ in difficulty and pleasantness, as well

as their functional importance for society. For all positions to be filled, certain rewards need to be linked with them, and inequality ensures that all positions are filled (Davis & Moore, 1945). The central idea of this theory is motivation. More substantial rewards and greater status are important to encourage people to try to occupy certain positions. The use of the Functionalist perspective to penury permits one to learn some common lessons. Gans (1972) listed some purposes of poverty following Merton's recommendation that things in society can be dysfunctional for some (see Gans, 1972:3). Gans notes that society does not appreciate the resultant opportunities brought by impoverishment.

In contrast to the Functionalist Approach, contemporary economists argue that poverty should be eliminated to ensure equitable and sustainable distribution of resources in society (UNDP, 2014; IMF, 2015; World Bank, 2017c). FI and sector enhancement have a huge effect on an individual's welfare and the economic activity of a country (World Bank, 2014, 2015).

However, the theories do not go further to investigate the determinants of their status, for example, that can help in explanations of their social status and financial inclusion or exclusion. Inequality is reduced by ensuring the inclusion of all segments of the society, particularly the poor or low-income earners. Marx is criticised for his non-observance of the rise of diverse social classes or the decrease of the dominant fundamentals of the waged people, and the stressing of discordant production instead of consumption (Lydall, 1968). In addition, Marx does not discuss the following: (1) How poor individuals can raise their income and their status in the society; (2) How inclusive growth or financial systems can enhance individuals' welfare; and (3) How to reduce the difference between the different classes (inequality).

2.5   RISK MANAGEMENT ROLE OF FINANCIAL INSTITUTIONS

Although a deep and wide financial sector enables economic development, the financial system growth attracts risks. The risk management process allows evaluation of the potential losses for the financial institutions in the future and allows them to take measures to deal with the problems. The literature suggests that stable economic development needs a steady and conducive macroeconomic environment. This is explored briefly below by discussing the role of risk management in the financial sector's development.

2.5.1   Risk management in the financial sector

Researchers maintain that the ability of the financial sector to ameliorate risks enables the economy to withstand economic downturns. This then leads to a more sustainable environment that supports growth. However, there are contrasting views, for example, that as the financial sector develops, the opportunities for conjecture and volatility increase instability and the likelihood of financial disasters (Easterly, Islam & Stiglitz, 2000). Arner (2007) maintains that risks are inherent in the liberalisation of the sector across the world in emerging economies, such that adequate domestic restructuring is a prerequisite. Without a supervisory and regulatory framework that keeps pace with financial development, sophisticated financial systems will not be able to avoid financial crisis.

Consequently, the concern is how to structure an inclusive financial sector that empowers and facilitates economic development in view of financial sector stability. The studies on banking system challenges reveal that several of the financial crises experienced in recent decades resulted from structural weaknesses in the financial systems (Krugman, 2009; Shiller, 2008:29). These include fragile regulation and supervision, poor governance and extreme deposit protection, since they are associated with the rewards for bank managers on taking risks in lending operations.

Krugman (2009) argues that there is the possibility of a catastrophic failure in any market economy. In a study done in the US, Shiller (2008:29) found that a financial crisis could be the result of borrowing defaults. He argued that the 2007-2009 financial crisis resulted from asymmetric information and lax lending standards. In addition, there are specific banks' characteristics that include currency and maturity conversion, as well as unbalanced data, that cause banks to be susceptible to withdrawals, and to collapse when hostile shocks occur. The collapse of a banking institution can lead to a systemic banking crisis. Studies highlight the significance of well-structured financial regulation and supervision in a country's financial sector.

However, there are differences in the sequencing of financial sector innovation in developing economies. The debate is related to the significance of a country's financial arrangement, that is, the extent to which economic growth of a country is bank-centred. Lin (2009) argues that developing countries have to create inclusive appropriate local banking institutions that will spearhead domestic economic growth.

He argues that the important issue is setting up an inclusive financial system that serves the economy's productive sectors. Lin further argues that the magnitude and intricacy of financial sectors and institutions in the developed world may be inappropriate for developing countries. Lin recommends that the financial sector of developing countries should focus on activities such as small-scale manufacturing and agricultural activities.

There are contrary views to the notion of inclusive small, private domestic institutions taking the lead in economic activities. Banerjee and Duflo (2009) agree that large foreign banks may not be the answer to low-income countries' problems, as there is little evidence to support that. However, they argue that most low-income countries face the challenge of inadequate supply of risk capital. This is because the funding of new ideas and projects may be a challenge for minor banks, but in principle, stock markets can supply this type of funding. Stock markets directly fund large projects, and venture capitalists can close such gaps. In their argument for stock markets and venture capital to fund new firms, Banerjee and Duflo (2009) acknowledge that establishing a stock market may not be easy.

Moss (2009) argues that equity markets do not provide capital for small firms or projects. He also does not deny that inclusive domestic banks are more likely to serve the poor and small clients. Moss maintains that developing countries' problem is not on the choice between equity markets and minor community banks. He views stock markets as better positioned than banks in developing an economy. Moss maintains that equity markets are useful in different ways to stimulate wide involvement in the official economy. He mentions the issue of public securities as a way to allow small resident investors (individuals and firms) to take part in the formal financial sector, as large institutions list on the bourse. He recommends long-term plans for the nascent equities markets in developing countries. Inclusive financial systems also play a crucial role in firm development as discussed below.

2.5.2   Role of inclusive financial systems in developing economies

Regarding the role of inclusive financial systems, Moss (2009) argued that equity markets usually provide capital for large firms and projects. Schoar (2009) concurs with many other economists' views that an inclusive and developed banking system is significant in enabling firm development and competition. She is also agreeable to the

view that stock markets play an insignificant part in the total financing in developing economies.

However, Schoar argues that minor banks and micro financial institutions are not able to supply adequate risk capital to fund small firms to enable them to grow. The reason for this being that the small financial institutions may be fragile and susceptible to local shocks. The fragility then reduces the capacity to fund small, risky firms or new projects. Schoar further argues that this becomes disadvantageous to countries that largely depend on banks for financing new projects. Whilst concurring on the important role of banks to improve the economy, she states that finance is simply a tool to create opportunities, not a goal in itself.

In answer to this, Schoar (2009) then proposes a two-tier way of financing which: 1) Consists of small banks serving largely subsistence entrepreneurs, 2) Consists of bigger banks serving transformational entrepreneurs, namely those who create job opportunities for a multitude and develop to large scales. The argument is that this calibre of entrepreneurs possesses the ambition and proclivity to take risks different from subsistence entrepreneurs. They need huge capital amounts that the small institutions are not able to supply.

Levine (2009) agrees that economic development is dependent on the level of development of the financial structure. Levine postulates that the structure of the financial sector of developed countries is inappropriate for developing countries, a fact that many policy advisors ignore. The suitable structure and role of the financial sector depends on the nation's political, regulatory and economic systems. However, Levine maintains that the consent for inclusive indigenous resident banking institutions being the backbone of low-income economies' financial structures overemphasises the method rather than substance. His perspective is that the objective must be to design laws, policies and players that create a conducive situation for the provision of appropriate risk, credit and liquidity facilities to the economy. Levine highlights studies identifying the destructive consequences of establishing minor banking institutions as the anchor of the financial sector in the larger part of the 20th century in the USA (Zhuang *et al.*, 2009). The strategy of maintaining minor banks and limiting the proliferation of large banks was successful but resulted in some challenges. The several small, localised banks created monopolies, blocking new entrants that would bring some form of competition. This ended up negatively affecting the impoverished

by channelling funds to borrowers from the neighbourhood, thereby retarding economic development. There was unproductive allocation of credit and increased the fragility of the banking sector because it was undiversified.

Small, local banking institutions may have more information about the small firms in the local area, whilst big banks diversify with more effective credit scoring procedures. On the issue of banks, Levine postulates that large banking institutions may be too large to supervise and the small banks may be too small to monitor. He also maintains that equity markets may not supply much risk capital to companies, but supply corresponding risk services that assist in the productive allocation of funds.

Zingales (2009) shares the same sentiments with other economists that the model that works in developed countries may not work in low-income countries. Zingales maintains that the future change and growth of equity markets is crucial. However, Zingales differs regarding the over-reliance on microfinance in economic development to spearhead growth. He supports the notion of small banking institutions in championing development, as the organisations have more information for development purposes. The large government-owned banks might be less active than inclusive small banks due to political interference in credit allocation becoming a huge barrier. Generally, he is in favour of a competitive financial system that is inclusive and relies on markets.

Thoma (2009) similarly maintains that low-income countries require an inclusive banking system with minor banks and MFIs to provide the basic financial services. Advanced financial services may be required for efficiency, and these include products such as derivatives. He maintains that not all financial requirements must be straightforward or simple even in low-income countries. Thoma goes on to argue that one hindrance in the effective delivery of financial services in underdeveloped countries is inadequate information of borrowers, a problem he thinks small banks can solve. Overall, he is for the small banks taking the lead in economic activities in low-income countries.

Khwaja (2009) claims that in theory, small banks respond to localised information because of lack of bureaucracy. Khwaja argues that it is not clear why large banking institutions do not establish better-devolved decision-making systems. There is empirical evidence that small resident banking institutions serve largely small

customers, but it may mean that the situation may force them to focus on that type of clientele, as the larger banking institutions would have grabbed the good borrowers. He contends that countries that experience high growth rates have created a conducive platform for minor banks, and growth ignites the rise in the small bank share and not the other way round.

The literature did not adequately address some financial aspects that include that which contributes to the strength of the financial sector in terms of effective and efficient delivery. For example, the literature has inadequately addressed the appropriate model(s) that advance the function of the official financial system in economic expansion. There are still gaps on how financial institutions can work to improve information asymmetry for low-income earners, and how the financially excluded can obtain accounts with formal financial institutions. Research is yet to consider how the financially excluded will get relevant information on financial institutions' processes, products and services. In other words, what is the best information dissemination channel for the bank to the prospective and current customers?

The current study examined the contribution of social networks to FI. This is because the use of social networks may result in the easy flow or dissemination of information that will enable an individual to make an informed financial decision. The section below discusses the theories and empirical studies linking FI and economic growth.

2.6   FINANCIAL SYSTEMS AND ECONOMIC GROWTH

The early theories of economic growth acknowledged factors, such as capital, labour and institutions, as having an influence on economic development. However, earlier scholars, because of the existence of the Modigliani–Miller Theorem and EMH (Modigliani & Miller, 1958; Malkiel, 2003:19), often ignored the significance of funding for economic development. These theories made an assumption of the perfection of the capital markets with no frictions. This supposition entails that investors trade securities with no transaction costs in a perfect capital market situation.

In contrast to this view, the assumption that entrepreneurs can borrow and advance at the same price is practically not valid in financial markets (Fama, 1990). The first theories of economic development also assumed that there is a need for an

established and broad financial sector that mobilises funds and directs them to productive units of the economy. This leads to the question: Which development precedes the other?

Recent work and theories of economic growth intensely maintain that financial development is a prerequisite, as it enables the necessary environment for economic expansion (Petkovski & Kjosevski, 2014; Fink, Haiss & Vuksic, 2005; Levine, 1997, 2005; Wachtel, 2001). The main services offered by banks include savings mobilisation, risk diversification, savings allocation and monitoring the allocations of managers. These functions are aimed at influencing savings and investment decisions, thereby enhancing economic growth.

Economic development can be fund guided, such as when financial development ignites expansion. On the other hand, it is demand following, that is, when industry expansion generates the necessity for financial facilities (Mohan, 2006). An enormous body of empirical literature advises that financial system development, and more accessibility to formal financial products accelerate economic growth. This is achieved when income disparity and poverty are reduced (Kakwani & Pernia, 2000). Several research studies have explored the macroeconomic relationship between financial growth (inclusion) and sustainable economic expansion. Those studies involved averaging out factors in the long term and used regression with the objective of identifying differences in the various economies' growth rates (Arestis & Demetriades, 1997).

The findings of numerous observational researches reveal a positive association between economic and monetary development (Levine, Loayza & Beck, 2000; Beck *et al.*, 2000; Caporale, Rault, Sova & Sova, 2009). Contrary to this view, other studies have reached varied conclusions on the role played by financial system improvement in economic growth. A study by Demetriades and Hussein (1996), proposes that the link between monetary and economic expansion rates differ from nation to nation. In a study of 12 economies, they found a feedback relationship in four of them, while in the rest, the relationship stretches from industry expansion to finance, pointing to the fact that there is no way monetary structures contribute to economic expansion across countries. Contrarily, a study by Drakos on the association of industry and monetary system growth in 21 economies, found that defective rivalry in the banking system slows down economic development, in addition to influencing business cycles

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(Drakos, 2002). However, the banking sector dominates the financial intermediation in production or developing economies.

Recent development theories show that when there is no access to finance, there will be a persistent income inequality. The income disparity also makes the economic growth rate slower (Bonin & Watchel, 2003). Low FI levels prevail more in imbalanced societies, if compared to those with less disparity. Burgess and Pande (2005) established that when countryside outlets in India increased meaningfully it resulted in poverty emancipation in those areas. Apparently, a strong accord exists in different studies that large and aggressive financial players make a significant contribution to economic development.

A developed and sound financial system permits greater access to funds, as under-developed financial systems restrict and constrain the availability of funds. In the absence of formal finance, borrowers resort to high-cost informal sources that include moneylenders (Germidis, Kessler & Meghir, 1991). Underdeveloped financial systems finance less economic activities. The reason being the constrained availability of funds and the exorbitant costs. Conversely, developed financial systems may also struggle to serve low-income groups because of a lack of the required securities and documents (World Bank, 2006). In many cases, low-income groups end up accessing high-cost informal sources, resulting in the growth benefits accruing to those who are already financially included (RBI, 2008).

Where FI levels are low, some small firms and low-income individuals utilise their inadequate resources for investment in schooling and entrepreneurial activities (World Bank, 2011). It is essential that susceptible groups have access to reliable, convenient and sound formal financial products, especially those in disadvantaged areas, to speed up economic growth (Kakwani, 2000; RBI, 2008). It ought to be emphasised that the Gini index (a measure of the distribution of income across a population) is adversely and significantly related with FI (Alesina & Rodrick, 1994; Persson & Tabellini, 1994).

An established and efficient banking system is vital for development, since only formal financial players have the capacity to satisfy the required credit, savings and investment products (Chhikara & Kodan, 2011). Moreover, a developed monetary system allows the financially and communally excluded people to participate in

production, aggressively contributing to economic growth and cushioning from financial disasters (World Bank, 2013; RBI, 2008). Social, as well as FI, contributes to the equal distribution of economic growth benefits.

A robust link between the rural and the entire global financial marketplace reduces the cyclical, industrial and regional variations in the supply of credit and demand thereof. This will go a long way towards making the rural population partake in investments outside the rural areas (Moll, 1989). In least developed countries, accessibility to rural credit goes a long way in stimulating new investments and encouraging new technology developments. Therefore, improving financial accessibility to the poor people must be a priority everywhere to ensure quicker economic growth (UNDP, 2014).

Developed financial systems should be able to organise appraisal techniques and other mechanisms, empowering them to fund even the marginal production activities for the promotion of economic growth. The obtainability of credit to prospective businesspersons permits new entrants on the markets, resulting in more competition, which, in turn, enhances enterprising and production. The high industrial growth rates reported across the world can be attributed to the expansion in bank credit in recent years (Bell & Rousseau, 2001).

Highly developed financial systems ensure safe savings, appropriate loans for all, appropriate credit facilities, and transaction services that enhance incomes, management of risk, and emancipation from poverty (UNDP, 2014). Studies have revealed that access to financial services helps in reducing transaction costs. Formal financial services contribute to greater productivity and social security, as the financial structure plays a catastrophic amelioration role.

Empirical studies also sustain the notion that the efficiency of a financial structure has a great influence on the expansion of the economy (Chhikara & Kodan, 2011; Rajan & Zingales, 2003). There is an observation that different processes of financial expansion, which embrace the agents' financial assets, broad money, domestic funding to free enterprises, equity and debt market funding, are associated with economic development (King & Levine, 1993a; Levine & Zervos, 1998). Moreover, Rajan (1998) found a positive association between monetary sector growth and industrial level development. In addition, the modern endogenous growth studies,

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grounded on 'learning through action' procedures, merit finance with an extraordinary role in development (Aghion & Howitt, 1998). Furthermore, FI ensures several benefits flow to consumers, regulators and the entire economy.

In summary, FI is the route to inclusive and impartial growth in an economy. An inclusive financial system permits the parsimoniously and communally excepted individuals to participate, taken together production, aggressively contributing to economic growth, as well as cushioning of financial crisis. Once an account relationship is established, more benefits will accrue to the customer, such as access to a broad range of financial products. There will be access to safe, standardised products and services provided by credible regulated and supervised institutions. A banking account is by far the most effective way to robust FI, and represents a valuable position for all the economic divisions in a country. Therefore, there is need to examine the channels for financial resources distribution. Discussed below are the indirect and direct channels of inclusive financial system benefits.

2.7   DISTRIBUTION OF RESOURCES FOR DEVELOPMENT

This section discusses the literature on how the resources for development are distributed. There are different channels that relate how the financial system benefits improve society. One channel operates indirectly via economic expansion and another one directly when the deprived benefit from using appropriate monetary products. Discussed below are the channels.

2.7.1   The indirect channel

One major way that financial system development reduces poverty is through economic growth. Opportunities may arise when investment is done in the productive sector. There can be job creation as small to medium enterprises, as well as other sectors, increase production. The investment could also be in human capital development, thus improving the capacity building of the enterprises. A number of scholars agree that economic development eases utter poverty. The following four possible channels explain the product of economic expansion on lessening poverty.

- The growth of the economy could create employment opportunities for the poor.

- Greater economic growth rates can decrease the wage disparities between the trained and untrained, while the advanced phases of development benefit the poor (Galor & Tsiddon, 1996).

- High economic growth may result in more tax income, facilitating the national authorities to create bigger economic space in terms of communal amenities, for instance, schooling, wellbeing, recreation, and other social welfare needs. These could then benefit the marginalised and the poor, as the government spends on human capital development (Perroti, 1993).

- As the financial systems become inclusive, capital mobilisation improves with higher economic development. Therefore, more money is availed for the needs of the prospective entrepreneurs for productive reasons (Aghion & Bolton, 1997), thus raising their earnings.

In earlier literature, there exists contrasting opinions on the development–poverty elimination link. The Kuznets' Inverted-U proposition suggests that economic development could raise income disparity at the initial stages of growth, then decrease it at the later stages of industrialisation (Kuznets, 1955, 1963). The argument is that the asset-rich class that have easy access to credit or are able to self-finance themselves and enjoy the early harvest of industrialisation. The early beneficiaries also manage to get a larger portion of the economic gains, as the poor remain disadvantaged. Contrary to this view, the 'Trickle Down' Theory suggested that economic development could benefit the poor through vast economic opportunities and job creation, thereby creating the requisite conditions for more delivery of the gains of economic expansion (Todaro, 1997).

There has been unanimity in recent years that economic growth, FI and financial system growth reduce poverty. In the early 1990s, quality data from several countries related to the distribution of income permitted empirical testing of standing arguments. Several studies focused on explaining the changes in poverty levels, considering the growth effect and the delivery effect triggered by changes in the Lorenz Graph maintaining regular earnings the same (Datt & Ravallion, 1992; Kakwani, 2000).

The studies found that expansion outcome clarifies the greatest portion of the variations observed in poverty. Other studies, such as that of Fields (2001) that span a period of 20 years in a cross-sectional survey, found that people with better per

capita incomes or consumption had better welfare levels. Scholars concur that the role of economic development in dealing with poverty does not imply that "it is all about growth". Fields (2001) postulates that the influence of development on poverty mitigation is determined by the rate and the extent of the disparity.

It is worth noting that as much as growth may be important for poverty alleviation, it is not sufficient in itself. Besides growth, a number of elements are also necessary for poverty alleviation. It is important for the poor households to partake in the economic development process by building up their asset base. Growth has to be widely inclusive and involve all segments of society. High disparity levels are also a cause for concern in fighting poverty, and FI must be a policy priority (Kanbur & Lustig, 1999).

Economic development and wealth delivery are interrelated in a number of ways, and the success of economic improvement translation to a lessening of poverty is determined by the early stage of inequality (Lustig *et al.*, 2002). It becomes imperative for governments to introduce some measures in the short term to assist the public, as it may take long periods for the marginalised to enjoy the pay-offs of policies or strategies. The direct channel is an option and a discussion of thereof informs policy reviews. The direct channel involves accessing financial products for development purposes. Section 2.7.2 gives insight on the direct channel of resources.

2.7.2   The direct channel

Institutions for acquiring, tracking and serving customers through multiple channels can utilise direct financing channels. Direct distribution allows quicker observable results. The channel involves more issues than the indirect channels. These include profitability, competition, product performance, customer feedback, and building relationships with customers. Several scholars are of the opinion that growth of the financial system unswervingly contributes to a decrease of poverty by supplying or raising the accessibility of monetary products to individuals who were previously excluded (Park & Mercado, 2015; Amidžić *et al.*, 2014).

Many economists believe that monetary system growth has a huge influence on the poor. The main reason being information asymmetry because there are credit constraints in funding the projects of the poor, as they cannot fund themselves and have no collateral (Banerjee & Newman 1993; Galor & Zeira, 1993; Aghion & Bolton, 1997). Such controls limit the impoverished from taking advantage of venture

prospects that arise. The situation can also be worsened by the fact that the poor will be financially excluded (no accounts with formal financial intermediaries) and those institutions with a capacity to extend credit will have no history of the borrower. An inefficient financial system produces greater income differences by inexplicably preventing capital from flowing to 'unbankable' entrepreneurs.

In the past decade, confidence has been pinned on the life-changing power of having access to formal financial services and products. One financial access advocate is Muhammad Yunus, 2006 Nobel Peace Prize winner, together with the Grameen Bank, the institution he established to supply the financially deprived citizens of Bangladesh with formal finance. Muhammad is an advocate for the transformative power of small business loans to the poor, arguing that as incomes improve, children get long-denied opportunities (Karlan & Morduch, 2009). Yunus' contribution has its foundation in economic concepts.

The view is consistent with investigations of credit control showing that a lack of requisite information on customers can cause the enforcement of contracts and the outcomes are not Pareto efficient (Karlan & Morduch, 2009; Besley, 1994; Stiglitz & Weiss, 1981). Therefore, developments in lending markets then channel gains to both equity and banking sectors. The argument that the marginal yield to investment is significant when funds are limited buttresses the assertion that the financially excluded have huge benefits to realise from accessing formal finance.

However, on the ground, banks have experienced challenges in providing such services and products cost-effectively. The financially excluded remain poor, and in most cases, lack the collateral to offer for loans. Furthermore, the financially excluded want to make largely small amount transactions that are unattractive to profit-making organisations (Cull, Demirgüç-Kunt & Morduch, 2014; Johnston & Morduch, 2008). Consequently, MFIs close the gaps left by those incentive-seeking institutions and the problems triggered by transaction expenses. In contrast with Yunus' views, it is argued that there is a long list of other factors associated with poverty that include weak labour markets, low education levels, discrimination and poor health (Karlan & Morduch, 2009). These challenges are likely to undermine the efforts of financial access in raising incomes.

There is evidence that while funds may bring resounding results for some, for others the results may not be significant. Yunus' way of emancipating the poor centred on the investment's potential returns but the results vary. More significantly, the model concentrated on the provision of small amounts of credit for investment purposes. Yunus' ideology of unleashing the potential of small to medium enterprises has resulted in a powerful account. This may prompt experts, as well as policy-makers, to respond appropriately and make recommendations to address the needs of the marginalised. However, the larger financial requirements of the poor are comparable in different ways to the needs of wealthier households. The needs include tools for managing financial resources, ideas to save for investment purposes in the short to long term, and strategies for managing exposure. Therefore, the access to formal funds for expansion of business yields income that can facilitate these tasks.

Collins *et al.* (2009), in a study to display yearlong financial plans, tracked the financial activities of marginalised households in India, South Africa and Bangladesh, they found that the immediate needs of individuals guide financial plans. The basic needs include illness, school fees, food, other large expenditures and productive prospects arising. In contrast to small loans for business drive, the study found that no needs are necessarily close to running a small business. This is so because requirements are the same for those working in towns and that of females operating small ventures in the countryside.

Views against the FI agenda include that the case for FI that was advanced by the World Bank (World Bank, 2006) depends on the naive perspective of the link between access to formal finance and economic growth sustaining them. The increasing evidence involving the real effect of small credit programmes in developing countries claiming that positive developments follow FI. According to Gans (1972), poverty is reduced, not eliminated, implying that some efforts to deal with it may be futile.

According to Mader (2017), the high expectations of FI of reducing poverty and the financial system growth effects on economic growth lack justification. It is also argued that the estimations of statistical relationships of FI approaches and bigger economic activities using information from several countries are only valid if conditions are the same (Kvangraven & Dos Santos, 2016; Baylis, Smith & Owens, 2011). That is, the association between financial growth and macroeconomic effects must be uniform across all nations, and at the same stage, for the findings to be credible. The World

Bank has also been criticised for depending too much on cross-country approximations, while downplaying the impact of history and the institutional specifics of the economies (Banerjee, Deaton, Lustig, Rogoff & Hsu, 2006). The differences in underlying relationships across countries make the empirical work unreliable.

At the micro level, studies linked with the World Bank, such as that of Cull *et al.* (2014) on the influence of numerous FI initiatives, were criticised for saying little about what may transpire in different settings. The studies also lacked external validity (Baylis *et al.*, 2011). Financial-intermediation services in different economies, regions or socioeconomic strata will have varying results (Sarma & Pais, 2010). An example is that of a credit facility capable of instantaneously changing the financial status of the beneficiaries and the community, as the tenor and delivery depend on the purposes to which credit is utilised, especially in terms of speculative, consumption or productive activities (Dos Santos, 2011, 2009; Beck *et al.*, 2012).

Countries such as Thailand, Iran and Turkey, have shown high levels of FI and low measures of human development (Kvangraven & Dos Santos, 2016; Narasimhan, 2014). In contrast, countries such as Armenia, Peru, Albania and Mexico have reported significant improvement in the welfare of their people against low measures of FI. This implies that a country's financial services conditions should be considered, and that includes evaluations of the modalities of service delivery.

Kvangraven and Dos Santos posit that claims established on the panel-data approximations from different countries are not a systematically binding conclusion regarding the effects of FI. Therefore, it is wrong to assume that FI characterised by well-regulated micro-credit and broad microfinance initiatives will result in positive developments everywhere. However, these limitations should not refrain the advocates of FI from supporting the idea that FI is comprehensively proficient in delivering positive change in individuals' lives (Kvangraven & Dos Santos, 2016).

Banking institutions take deposits and offer loans, among other services. In the mid-19th century, the Schulze-Delitzsch and Raiffeisen strategies resulted in the establishment of cooperative banks as philanthropic institutions. These aimed to encourage workers to pool funds and accumulate savings (Hesse & Cihak, 2007). These banks were intended to ameliorate famine, disasters in labour markets and glitches with public allowances, as studied by Ravallion and Chen (1997). Such

developments quickly spread to other countries in Europe, such as Austria and Italy, and the Americas (Mettenheim & Butzbach, 2012). The Financial Institutions Model contributed positively to the economic development of other countries.

According to Hesse and Cibak (2007), lower revenue diversification offsets lower profitability and capitalisation. Consistent incomes vital for banking institutions' efficiency come as a result of high FI levels (Gurtner *et al.*, 2002). High levels of FI in a country aid the ordinary deposit-taking and credit-delivering formats in improving exposure reduction strategies at banks. However, in contradiction to the Modern Market-driven Banking Philosophy, banking corporations that have to maintain traditional supplies of deposits has strengthened the soundness and viability of the banking sector. According to De Jonghe (2010), the Banking Theory anticipated markets to lessen risk on the asset side, but this perspective has lost credibility since 2008.

The reliance of banks on commission-centred earnings seems to increase revenue unpredictability (Mercieca, Sckaeck & Wolfe, 2007; Stiroh, 2004). The banking institutions' reluctance to diversify earnings assists in explaining the long-term stability and performance enjoyed by these institutions linked to their business and governance models. The main advantage of supporting the banking sector over equity and bond markets is the capability of banks to balance inter-temporal risk (Loayza & Ranciere, 2005; Allen & Gale, 2004a). As deposits tend to increase, the stability or risk absorption by banks remain even during crises.

The competitive advantages of banks may produce a future modernisation of the banking sector concerning efforts in maximising FI levels. Large banking institutions can accumulate capital in the form of deposits or profits to be used in times of need. Ayadi, Llewellyn, Schmidt, Arbak and De Groen (2010:108) postulate that the creation and unlocking of funds is a risk management strategy. The accessibility, trust and more public confidence in the banking sector offers competitive advantages. This increases the importance of ensuring a higher percentage of the population is financially included.

The need for stability in the banking sector implies the use of original approaches in banking theory, FI issues and laws guiding institutions' operations (Gorton, 2010; De Grauwe, 2009). Gorton and De Grauwe concur that from 1980, changes and

regulations were designed to support market-oriented finance to avert financial suppression and free enterprise system forces. In light of the competition, strategy options and systemic significance with banking institutions, a return to the original strategy of ensuring high levels of FI will be imperative. Basing on the rudimentary meaning of a banking institution as client centred, deposit dependent and loan creating organisations, there is need to explore factors influencing FI levels in a country (World Bank, 2017d). Greater client/customer confidence, trust, communication, effective customer relationship management, broad deposit bases, long-term profit sustainability, disinclination to unprincipled marketing and sales sum to serious competitive advantages. Through innovations, banking institutions in Europe have modernised in line with revolutions in ICT to offer better secure savings, insurance and credit among other services for upsurge in competition, transforming risk, allocating resources and flattening credit and growth curves (Aliyu & Tamin, 2012).

The inclusiveness and development of the financial sector reduces transaction and information costs by allowing less well-off entrepreneurs to access capital, improving capital allocation and having a huge influence on the poor. Fields (2001) maintains that there are huge benefits in developing the financial and credit markets, as underdevelopment causes perpetual income disparity, slower economic growth, and continued poverty. As the poor get more access to credit, more opportunities to participate in productive endeavours arise thereby improving their incomes. The outstanding strategy to alleviate penury in developing countries is supporting small to medium enterprises (SMEs) through the provision of appropriate financial services (credit) (Morgan & Pontines, 2017). SMEs and other informal household enterprises are employment intensive and this could be the pathway to poverty elimination. Providing credit to productive (high yielding) businesses of poor households has a huge influence on poverty reduction.

FI allows the poor to manage financial or medical expenses, reducing the challenges of impoverishment, in case hitches are experienced. Nevertheless, there are sceptics who hold the view of the financial system development leading to broader financial access in the early stages. It is claimed that it is mainly the wealthy and high political figures who enjoy such developments in the financial system (Haber, 2004). In these scenarios, more financial development succeeds in directing more capital to a few. It has remained debatable whether financial system development narrows or broadens

income inequality even though it causes aggregate development. There are views backing a curved connection between funding and earnings delivery. In a research on the association between monetary and trade and industry expansion, Greenwood and Smit (1997) reveal that the link may result in an upturned U-shaped curvature of earnings disparity and monetary system growth. In the initial phases of expansion, just a few comparatively rich people have access to financial markets and higher yielding investments. Inclusive economic development allows more individuals to be able to be part of the official monetary system, with positive consequences on trade and industry expansion. When there is huge success in economic growth, everyone takes part in the financial system enjoying the full array of gains.

Financial system development does not automatically result in better accessibility to formal financial facilities by poor folks. For the financial system development benefits to quickly cascade down to the poor, a public sector interference such as microfinance schemes and SME credit programmes is necessary. In theory, justifications exist for the accessibility of credit being more adverse to SMEs. The costs involved with loan appraisal, supervision, and collection are very significant. Lenders prefer providing higher sums of loans to bigger enterprises than smaller sums to numerous small corporations. The small to medium enterprises are unlikely to provide security for loans, and this discourages lenders, as the default risk may be high. Because of the challenges, governments may establish various programmes to ensure that all segments of the population have access to financial services (ADB, 2009). An example of one success story of microfinance is that of the Grameen Bank (Yunus, 2007).

The support of microfinance organisations and SMEs credit programmes has a special for development purposes. There have been opposing views on poverty reduction and greater access to financial products and services by SMEs. One argument is that access to finance is not the only limitation for SMEs such that one can say it is a panacea for reducing poverty. Other challenges influential to the growth of SMEs include lack of market access, expertise, technology and market failures (Levine, 2012).

There are several studies that have cited limitations to the application of loan facilities for impoverishment reduction that include challenges in categorising the poverty-stricken and ensuring loans are accessed by the deprived; lack of business skills; the

desire by the poor to engage in economic activity and fragile administration (Sajeda *et al.*, 2003; UNDP, 2014). The other challenge is that in many instances, the microcredit programmes are in isolation instead of combining with other backing services such as training, information, land and technology (Biswas, 2010). The ADB (2009) argues that the major constraints to enterprise growth are financial access, lack of access to new technology and vibrant markets. SMEs must be innovative and adopt new technology if they are to grow. ADB also recommends that governments have to assist SMEs by providing financial literacy education, information technology services, vocational training and capacity building as well as facilitating access to finance.

In light of the previously mentioned, the literature has not adequately explored the effect of some factors influencing banking sector development and efficiency. These factors are important as they shed light on policy reforms in the sector influencing operations of banking institutions. The marketing and sales aspect has a great influence on the operations of today's institutions (World Bank, 2017c), and there is a lack of literature on the effects of social networks on bank operations. The need for inclusive financial systems requires insight into the existing banking theories.

2.8   BANKING THEORIES

The discussion of the three banking theories in this section may help to provide insight into the nature and benefits of FI.

2.8.1   The banking system

The literature commonly refers to three separate and independent banking theories. The Credit Creation Theory, which postulates that banking institutions are capable of creating money 'from naught' when extending credit from accounting procedures. The Fractional Reserve Theory, which affirms that it is the sole function of the entire banking system to create money, whereas every bank becomes a sheer financial intermediary, receiving deposits and issuing loans. The Financial Intermediation Theory states that banking institutions are financial intermediaries, individually and severally, making them inseparable in terms of their role from other non-bank financial institutions, particularly regarding deposit and loan businesses (Werner, 2016). These theories vary in their loan accounting procedures and policy implications. The theories also have their critiques and advocates.

2.8.1.1   Financial Intermediation Theory

The currently overriding Monetary Intermediation Model, maintains that banking institutions are not in any way separate from non-bank corporations that attract deposits and issue loans (Figure 2.4). By lending long and borrowing short, banking institutions create liquidity (Dewatripont, Rochet & Tirole, 2010). Literature shows several studies in support of this theory (Sealey & Lindley, 1977; Kashyap, Rajan, & Stein, 2002; Diamond & Dybvig, 1983; Diamond 1984, 1991, 1997; Eatwell, Milgate, & Newman, 1989; Bencivenga & Smith, 1991; Bernanke & Gertler, 1990; Rajan 1998, Tobin, 1963, 1969; Myers & Rajan, 1998; Allen & Gale, 2004a, 2004b; Baltensperger, 1980; Gorton & Pennacchi, 1990; Allen & Santomero, 2001; Diamond & Rajan, 2001; Matthews & Thompson, 2005; Casu & Girardone, 2006; Dewatripont *et al.*, 2010; Keynes, 1936; Gurley & Shaw, 1955; Gertler & Kiyotaki, 2011; Stein, 2014].

One of the advocates of the Financial Intermediation Theory, Von Mises (1912), stated that those who lend borrowed money (deposits) are banks, which is different from capitalists who lend their own capital. Von Mises maintained that this was one of the functions of banking institutions, while in the General Theory, Keynes (1936) argued that for investment purposes, savings have to accumulate. The view resonates with the Keynesian development framework by Domar (1947) and Harrod (1939) that is premised on the Monetary Intermediation Philosophy of funding, though it did not particularly aim to mould the banking system.

Figure 2.4:   The Financial Intermediation Theory of Banking

Source: Werner (2005)

Instead of relying on international banks to raise capital for investment, as espoused in the Harrod-Domar Models, strategies are needed to enhance the domestic

mobilisation of savings by the banking sector. One weakness of the model is the non-consideration of the determinants of savings levels or rates in different countries, as there appears to be an assumption that savings are automatic. In addition, it does not consider the policies and strategies of ensuring an inclusive financial system. Also left out in the discussions is the influence of ICT in enhancing domestic savings or FI for the purposes of trade and industry expansion.

2.8.1.2   The Fractional Reserve Theory

The Fractional Reserve Theory postulates that each bank plays a financial intermediary role. Conversely, this theory differs with the Financial Intermediation Theory in that it affirms that collectively, the banking system creates money by multiple deposit extension. When Gurley and Shaw (1955) claimed that banking and non-banking entities play related intermediary roles in creating financial claims, they were criticised by many scholars during the 1950s and 1960s (Culbertson, 1958; Smith, 1959; Solomon, 1959). Several of these challengers are advocates of the Fractional Reserve Philosophy. The consideration of money multiplier differentiated the Fractional Reserve Philosophy from the Intermediation Philosophy, and influenced other researchers to promote the method of fractional reserve banking. Phillips (1920:40) stated that what applies to the entire banking system is different from that of one of many units in that aggregate. In support of this theory, Crick (1927) affirms that the whole system creates money even though individual institutions play an intermediary role.

Consistent with this theory, Von Hayek (1929:90) states that with a tenth of a deposit, each banking institution can loan out 90% of the total amount that, in turn, increases deposits at other institutions, and that results in the formation of numerous deposits in the entire monetary system. Although Keynes (1936:25) subscribed to the Proportional Reserve Philosophy, he referred to money 'creation' implying scepticism regarding the creation of deposits. Moore (1988:65) argues in contradiction of the Proportional Reserve Philosophy, that the selection of the phrase 'bank intermediation' is not proper. He affirms that divergent from conventional wisdom, the shifts in proportional allocations as directed by the central banker have no direct effect on the volume of bank intermediation.

In summary, the Fractional Reserve Theory has the following weakness: too much weight on debt, which leaves nations exposed, governments with inadequate resources, and people beset with mortgages and overdrafts. The recent global financial crisis is attributed to monetary scarcity and insolvency (Hulsmann, 2003). There is a lack of a balanced view that includes savings mobilisation that is also vital for investments in the productive sector to be possible. There is no mention of adequacy of loanable funds and efficiency of the system. There is no mention of the determinants of loan availability from the demand or supply side.

2.8.1.3 *The Credit Creation Theory*

The Credit Creation Theory differs from the Financial Intermediary and Fractional Reserve Theories by arguing that banks are not financial intermediaries individually or aggregately. The theory postulates that each bank produces loans and money out of naught every time it effects a credit facility contract or purchases an asset. Banks need not to accumulate deposits first or reserves to extent credit. According to other theories, bank lending creates new loan and deposit funds, such that the upsurge in aggregate balances transpires without a matching drop somewhere else. However, the Credit Creation Theory affirms that the bank's statement of financial position and system of money supply are likely to reveal an upward trend when the remaining bank loan facilities expand. This contradicts the Monetary Intermediation Model, where the prevailing buying influence is reallocated, with the money supply not changing.

In summary, the Credit Creation Theory has been criticised by economists, such as Edwin Cannon and Walter Leaf, who concluded that banks cannot loan out more than the deposits received (Somashekar, 2009:15; Muraleedharan, 2009). One critique is that the initiative in the credit creation does not lie with banks, as postulated in this model, but with the depositors (savings) as bankers are merely intermediaries between lenders and borrowers. As loans are issued, the customer's account is credited with the same figure but the customer can withdraw the loan amount at any time. If cash is withdrawn from the bank, the cash reserve is reduced, meaning that the banker cannot grant loans beyond the cash deposited by customers. The bank is able to give loans because customers do not withdraw all their funds at once, and the funds that remain are lent out.

The Credit Creation Theory also fell short in the following aspects: a) No discussion of the determinants of deposits, which is the guarantee for loanable funds; and b) Some countries have high levels of financial exclusion, which makes the theory inapplicable.

The three theories have been criticised based on independency, that is, in reality, the three are undistinguishable and their definitions are misleading. The definitions are vague and appear to represent the same thing (Cochran & Steven, 1998; De Soto, 1998; Hoppe *et al.*, 1998). Von Mises (1971:264) argued that the matter referred to in the Credit Creation Theory is different from a real credit transaction where the lender for the time being surrenders something, namely, the transfer that makes it the basis of contentment and rejection and that is a basis of displeasure.

Further insight into the theories of saving and consumption behaviour will provide more information for policy formulation.

2.8.2   Theories of saving and consumption behaviour

The financial intermediary's role is to mobilise savings and create capital (loans) for the productive sector. In the formation of policies to enhance FI levels, it is important to consider the savings aspects that also include different investment vehicles. There are three main theories of saving and consumption behaviour that have been developed: (1) The Relative Income Hypothesis (Dusenberry, 1949); (2) The Permanent Income Hypothesis (Friedman, 1957); and (3) The Life-Cycle Theory (LCT) (Ando & Modigliani, 1963; Modigliani & Ando, 1957; Modigliani & Brumberg, 1954). The three theories stem from the Microeconomic Theory of Consumer Choice, and these theories give insight into the drive for higher FI levels in developing countries.

2.8.2.1   Life-Cycle Theory

This theory was employed to analyse the savings and retirement activities of the ageing population. The LCT acknowledges the differences in consumption requirements and income at various stages in an individual's life. Younger people have a tendency to consume more than their income, with their needs mainly being accommodation and schooling, which emanate from little savings. In middle age, income commonly increases and people pay off debts incurred earlier, and as such, savings accumulate. In retirement, income declines as the individuals utilise their accumulated savings.

Many studies have established proof of an arch-designed shape of savings which resonates with the Life-Cycle Assumption (Setterfield, 2010; Cynamon & Fazzari, 2008; Asteriou & Hall, 2007). Jappelli and Modigliani (1998) established proof for the bulge-designed savings shape following the account for individual contributions and drawing of retirement funds. The LCT sheds light on saving behaviours, and to some extent, the levels of FI of individuals.

This approach has attracted some criticism from different scholars. Gardner points out, among other scenarios, that the assumption in the Life-Cycle Hypothesis of all households having a certain, sensible vision of the size of family and composition that includes life expectancy of each member have an influence on consumption (Gardner, 1961). The assumption of each household holding to such visions, and the certainty of the use of the rational plan weaken the theory. Gardner argues these assumptions are unrealistic. Gardner did not agree with the origin of the LCT, that is, the statement by Modigliani that saving and consumption decisions of households give a deliberate endeavour to accomplish the preferred spread of expenditure over the life cycle.

In addition, contrary to the Life-Cycle Theory, James Duesenberry, in the Relative Income Hypothesis, affirms that people care more about their earnings and consumptions in comparison to other people around them, even more than their absolute wellbeing (Duesenberry, 1949). Lower income earners may consume more of what they earn than those earning more, as they desire to reduce the gap in their standards of living/consumption levels. The Relative Income Hypothesis contradicts the Permanent Income Hypothesis, a consumer spending theory that postulates that individuals spend money at a level which is in line with their anticipated long-term regular income. The early models of household saving hypothesised that poor households behaved differently from rich households with regard to consumption, and concluded that saving rates move in tandem with the income distribution rather than age.

Another criticism of the Life-Cycle Theory is that it fails to acknowledge liquidity constraints in different countries that hinder many from saving, or influence the financial sector's activities (Horlacher, 2002). Even though a household may have a clear vision of future income, there are remote chances in the real-world capital markets for borrowing long against expected future income. In such cases, consumption is influenced by current income, whether temporary or otherwise, not

necessarily because of the Life-Cycle Hypothesis. However, the response of consumption is to present income as not simple as portrayed by the "Absolute Income" Hypothesis. However, the consumption of younger households experiencing liquidity challenges may be affected by variations in their present income.

Many empirical studies have generated an enormous amount of LCT literature. The weaknesses of the articles that considered the savings conduct of senior citizens was indecisive on the links between the evident savings' conduct and saving patterns. Contrary to the findings of the Life-Cycle Theory, King (1985) established that aged citizens continued to save into their retirement. King also postulates that savings in retirement may be inconsistent with the LCT, if there is uncertainty in the future, for example, inflation and life span. The assumption made in this theory is that individuals will save or invest and disinvest at some later stage in life (retirement).

2.8.2.2 *The Permanent Income and Relative Income Hypothesis*

The Permanent Income and Life-Cycle Theory (LCT) are closely linked in that they use the same assumption that an individual attempts to maximise utility or welfare by matching a lifetime pattern of consumption with the period of constant earnings. However, it differs from Duesenberry's Relative Income Hypothesis that conjectured that an individual is less concerned with their absolute level of consumption than their relative level. Age plays a crucial role in influencing FI levels, as savings and consumption patterns differ in a lifetime in line with the LCT.

To understand the forces driving FI, there is need to know the determinants and implications of national savings rates. As policy-makers strive for target rates both in developed and developing economies, there is a huge variance between these two worlds (Gersovitz, 1988; Yannick, 2020). Collins *et al.* (2009) and Foster and Rosenzweig (2001) argue that the focus on saving rates by policy-makers puts too much emphasis on asset levels, which results in missing the value of savings for poor households. Several poor households can save even with low levels of assets but the lump sums accumulated are spent within a year.

However, personal savings rates are largely determined by a person's monetary plan, as well as at household level and access to different savings services (Karlan & Morduch, 2009; Adams & West, 2015). Contrary to the views that by making many financial products (CDs, savings accounts, savings bonds, automatic transfers)

available will increase FI, Karlan and Morduch (2009) argue that those able to save may end up buying risky assets, such as animals and jewellery, or use informal savings arrangements. These findings came out in a study on savings behaviours in developed economies and the study found that households do not always save more when having access to an array of lucrative saving products. Nevertheless, the main drive for FI is to mobilise savings for onward lending to the productive units of the economy.

The drive for credit in microfinance covertly assumes that the poor are unable to save for investments but instead borrow at relatively high interest rates for investments. This view has been heavily criticised from the 1970s, following the studies of McKinnon (1973) and Shaw (1973). To achieve high FI results, there must be an emphasis on the encouragement or campaign related to the appropriate formal financial products in rural areas (Guth, 2008; Adams, 1978).

Contrary to the views that the 'poor cannot save', there is evidence from various economies showing a high propensity to save in the rural areas. In his paper, Adams refers to the notable savings degrees reported after World War II East Asia. These included the typical inclination to save from 1973-74 that rose to 31% in Taiwan, an improvement from 19% in 1960. Japan reported 22%, an increase from 10% in 1950; and 33% in Korea, an improvement from 4% in 1965.

Adams contends that the remarkable achievements were the result of the pro-saving public policy. He further argues that regardless of the poor households' considerable voluntary saving, their capacity is affected by unreliable and unsustainable credit in the rural financial markets. Therefore, there is a vital need for an inclusive financial system for economic development.

To improve levels of savings, the current study examined the contribution of financial advice, internet access and social media, among other factors, to FI in selected African countries. A well-functioning financial system is a prerequisite for exponential economic growth. Discussed below is the role of social networks on FI.

2.9   ROLE OF SOCIAL NETWORKS IN FINANCIAL INCLUSION

Individuals with common consumer and social interests usually make up social networks. Communications through the social networks can facilitate consumer

wellbeing, relationship building and trade (Berger & Messerschmidt, 2009). The cause of user-generated media popularity is that it is easy to use and controlled by the consumers (Bai, Philippon & Savov, 2016). The use of social networks is also a quick way of interacting with others and to consume information. Bai *et al.* (2016) maintain that users' largely access huge amount of information with no participation or little involvement.

Smith, Sabat, Martinez, Weaver and Xu (2015) maintain that diverse forms of social networks are in existence and that they can be categorised according to how much social presence, media richness, and self-disclosure they contain. For instance, Wikipedia is a social media platform with a low social presence and media richness. It is a free and editable page with content written interactively by a number of unnamed internet volunteers. There are posts written in more than 270 languages with anyone having access to internet contributing (King, 2010). A blog shares both text and photos with individuals having the capability to put forward their own comments to the content. Most popular online platforms include blogs used by individuals to publish some personal information. Permalinks and trackbacks that allow links and comments between blogs are exclusive features of the platform (Swani, Milne & Brown, 2013).

Those with the highest media richness and social presence include WhatsApp, YouTube and Facebook (Dimitriu & Guesalaga, 2017). These social media platforms endeavour to reproduce three-dimensional interaction, such as live chats and picture, video and text sharing (Smith *et al.*, 2015). Researchers have categorised the levels of engagement that people show in social networks. Some users "lurk" in social networks, meaning that they see others, without generating any content themselves. "Newbies" are those who have just started commenting on a social platform without displaying signs of commitment. Consumers with popular discussion topics become "celebrities", commanding a huge following of members. In social media use, "minglers" refer to those who do not participate regularly, and "devotees" are enthusiastic members, while the "insider" possesses expert knowledge. Both "devotees" and "insiders" exhibit strong social and emotional ties to the network (Quinton & Harridge-March, 2010). Tobia and Stephen (2013) state that more individuals are willing to join a community than to contribute to it. About 10% will write on the wall, and tiny fractions of this will post photos or videos, or reply to discussion

topics. Kozinet calls such communities "semiquasi-not quite-communities" (Tobia & Stephen, 2013).

Word-of-mouth being an important tool of communication, social networks can access and benefit from it. Electronically, word-of-mouth occurs when people discuss products, brands and services among each other on the internet. Some users might have tried a product before, and can recommend it, or not recommend it to other users. Encouraging word-of-mouth can be regarded as a customer's willingness to refer a product to others (Ashley & Tutan, 2015). Such a word of mouth is inspired by the need to spread information, assist others, or even advise them of poor service or product (Kozinets, De Valck, Wojnicki & Wilner, 2010). Such spreading of information is a social force with a huge effect on consumers' purchasing decisions. Some scholars have argued that word of mouth has more of an impact than traditional marketing tools (Kozinets *et al*., 2010).

Research also shows that marketers need not be alarmed by negative word of mouth if complemented by positive ads. Other scholars argue that it is not the positivity or negativity of the news that matters but the volume of the word of mouth (Ashman *et al.*, 2015). Agresta and Bonin Bough (2011) recommend that if unsuitable remarks from a customer occur in a business-sponsored community, the tip is to not respond, or to respond offline. The cause for not reacting online is to avoid crowding the business' social media space with information of no value. If the negative comment is on inaccurate information, the business should answer immediately to correct it. However, if someone is attempting to stir up trouble, a business should not respond. A response may drive the person to a negative discussion that will 'pollute' the social media room. Practitioners suggest that is ideal to encourage the customers to contact the company through a private line, where the query can be addressed away from the public sphere (Agresta & Bonin Bough, 2011).

Though online discussions can generate unfavourable comments for all to see, such forums present an opportunity for marketers to follow discussions on their brand. The marketers can see comments and the response generated. This is not possible for word-of-mouth that happen offline (Quinton & Harridge-March, 2010). Researchers have been focusing on organisation-sponsored communities and their potential (Berger & Messerschmidt, 2009). The fact that consumers use these platforms to research new products/services and establish relationships is the motive for firms to

sponsor online communities to facilitate word of mouth on their products (Berger & Messerschmidt, 2009). Since the relationships formed in these networks are grounded in social bonds, they are difficult to replicate by rivals.

Social networks can be powerful and create a competitive advantage (Quinton & Harridge-March, 2010). However, a social network is not built around information sharing alone, but also around trust, friendship and alliances. One must be careful not to insert too much marketing in a social community, as it may undermine its integrity (Kozinets *et al.*, 2010). Agresta & Bonin Bough (2011), maintain that a firm must not post too much content on a Facebook wall. This might be seen as spam and be annoying to the followers. They suggest posting real valuable content that gives customers something to talk about (Agresta & Bonin Bough, 2011). As mentioned by Berger and Messerschmidt (2009), more consumers have less trust toward information coming from commercial sources. Instead, consumers go online searching for product reviews by other consumers, asking them questions directly. Online societies often attract like-minded users, and are therefore an ideal platform for searching this kind of product information (Berger & Messerschmidt, 2009).

In an investigation of online communities, Quinton and Harridge-March (2010) found that the most useful product and service information came from regular posters in the community. It also happens that other community users and customers know the answer to something better than a sales assistance that employed to answer customer enquiries (Berger & Messerschmidt, 2009). Many consumers view financial services as complex, thus a service that needs pre-purchase information and evaluation. Because financial products are viewed as being complex, they are also high-involvement products (King, 2010). For the financial services marketer it may be difficult to identify true versus not so true, loyal customers. This might be because even if a customer experiences dissatisfying service, many financial service customers stick with their financial service provider because switching may bring too much stress (Ashman *et al.*, 2015).

Social media steps over traditional outlets to offer faster information delivery with opinions, commentary and perspectives on business activity. It has become the need of the era for financial services organisations to set a policy concerning social media. Getting it wrong could mean noteworthy reputational damage. The financial services institutions that embrace social media are better able to attend to customer complaints

circulating in the online world. This enables them to respond before a reputational damage occurs. Social media is collective rather than monologue as many people are able to talk when they want, where they want, and how they want. Connecting through WhatsApp, Blogs, Twitter, Instagram and so on does not require physically going to a particular place. It is important to investigate the contribution of social networks to FI levels. Previous studies have concentrated on the influence of social networks on other products in other sectors. Existing studies have focused on social networks as a determinant of performance of products in other sectors (Chai *et al.*, 2018; Hu & Chen, 2012). The current study explores the determinants of FI in selected African countries with emphasis on social networks.

2.10 COMPLICATIONS IN SELECTING THE MOST APPROPRIATE THEORY

There is no agreement in literature regarding the best FI theory that is appropriate for the heterogeneous nature of economies. This is in line with the findings of Kodan-Kablana and Chhikara (2013) who noted that the need for financial products differs from nation to nation and from person to person. A proper FI theory includes the following aspects: (1) The financial products' availability aspects; (2) Affordability; (3) Convenience; (4) Adequacy; (5) Appropriateness; (6) Accessibility; and (7) Impact. Furthermore, Mader (2017) noted that it is difficult for a single theory to explain all aspects of FI, as new ideologies, theories and expectations are constantly emerging.

Tuesta, Sorensen, Haring and Cámara (2015), and Olaniyi and Adeoye (2016) summed it up by claiming that there is no agreement yet in literature regarding the theoretical framework on factors influencing FI. In other words, there is no established set of variables mentioned or referred to as the true determinants of FI levels. The demand and supply factors of FI require different approaches to the insightful investigation of FI (Osei-Assibey, 2009). The changes, dynamics and wide aspects of FI make it difficult to refer to a single theory.

2.10.1 Theories relevant to the current study

This section discusses the applicable theories related to FI. These supply a basis for the hypotheses and choice of research methods.

The Modern Development Theory postulates that modern states are wealthier and more powerful and that their citizens are freer to enjoy a higher standard of living. These theories are relevant as they encompass or analyse relative income inequalities, the evolution of growth and their determination in combined models. These theories emphasise the occurrence of financial market imperfections that play a crucial role in physical and human capital accumulation and their occupational choices. For example, financial market imperfections have a huge bearing on the extent of borrowing for investment by the poor. The Galor and Zeira (1993) model affirms that market frictions lead to deprived people not choosing investments. The Banerjee and Newman (1993) model postulates that the choice of occupation is influenced by their original endowments. Furthermore, the design of their occupational selection determines their savings, as well as risk appetite and profile.

The Harrod-Domar Model serves to explain the economic growth determinants and the crucial role played by savings and investments. According to the Harrod-Domar Model, the main strategy for economic development is savings mobilisation and generation of investment (Harrod, 1939; Domar, 1947). The model affirms that savings result in investments that culminate in economic growth. Harrod and Domar argued that the pace of trade and industry expansion is shaped by the levels of the economy, enabling savings and the investment-yield proportion. As such, the main purpose of FI is to harness savings through financial intermediaries, and channelling the funds to the productive sector and enhance economic growth.

The theories emphasising entrepreneurship maintain that the financial sector determines the extent to which the poor are able to raise money for projects. Financial development ensures that there is efficiency of resource allocation and comparative economic opportunities for the poor or relatively rich households. These theories show that the lack of finance can generate persistent income inequality. In addition, the contemporary development theories imply that the reallocation of wealth can facilitate exponential economic growth.

The Kuznets Hypothesis is relevant in the case of an indirect channel of development (see Section 2.7.1), as it stresses that inequality decreases with more economic development, that is, it may be higher when development emerges but increases when growth spreads to the entire economy.

2.11 CONCLUSION

This literature overview presented in this chapter illustrated the positive changes to a person's welfare as a result of financial inclusion. Financial exclusion was classified into optional and non-optional financial exclusion. Several theories were discussed that explain the economic growth determinants and the crucial role played by savings and investments. The main purpose for economic development is savings' mobilisation and the generation of investment. The literature revealed that an inclusive monetary structure is vital for penury alleviation and economic expansion.

Although a deep and wide monetary structure enables economic expansion, there are threats that accompany financial sector improvement. There is consensus among scholars that continuous economic growth needs an established and conducive macroeconomic background. The importance of an inclusive financial system in a modern economy characterised by economic growth is vital. While deductions shown cautiously and with sufficient qualifications, the majority of theoretic thoughts, as well as empirical indications, propose that there is a significant positive link between economic growth and monetary development. There are two main channels through which monetary system expansion influences poverty reduction in a country. One channel contributes indirectly through economic expansion, and the other directly when the impoverished benefit from reaching appropriate financial facilities.

The following three independent banking theories are commonly referred to in literature: (1) Credit Creation, (2) Fractional Reserve, and (3) Financial Intermediation. Werner's three theories have been criticised because in reality, the three are undistinguishable and their definitions are misleading. Financial trade and organisations ease market frictions that may inhibit the direct combining of savings in the society and channelling them to high yielding entities. Advanced monetary systems simplify the transacting of goods and services by the provision of payment facilities, assisting in mobilising and pooling savings from a multitude of depositors, obtaining and processing information concerning ventures and prospective investment activities.

Numerous deductions emanated from this chapter. Several FI models were discussed in detail and the inherent major problem is found in their inability to provide a collective outline of demand and supply factors determining FI. In other words, the existing FI theories are unreliable at giving a complete explanation of FI.

The next chapter centres on FI determinants, the significance of FI theories to the present study, and the influence of FI on economic expansion from both a theoretical and empirical viewpoint. The gaps and deficiencies in the extant literature are emphasised and the novel knowledge added by the present study clarified.

CHAPTER 3:
FINANCIAL INCLUSION AND FINANCIAL SECTOR GROWTH: THEORETICAL AND EMPIRICAL REVIEW

3.1 INTRODUCTION

The previous chapter discussed theories of inclusive financial systems to provide a point of focus for approaching the problem of low FI in developing countries. The design of a strong economic development policy requires an understanding in terms of the theoretical and practical point of view of how individuals access formal financial services from financial institutions. The main purpose of this chapter is to explain the literature underpinning the relationship between FI and financial sector development. FI can help to promote financial development.

The chapter also discusses the underlying theory or a set of guiding principles that can help to improve our understanding of FI as a pro-development initiative in the economics and finance discipline. As the aim of the study was to explore the determinants of FI in selected African countries, more emphasis was directed towards social networks. The insufficiencies and gaps in the existing studies are outlined and the new understanding to be added by the present research is explained.

The chapter continues as follows. Section 3.2 discusses the influence of FI on financial system improvement. Section 3.3 discusses the theories of social media networks. Section 3.4 explains the theoretical framework of the study. Section 3.5 examines the determinants of FI and their influence on the financial sector and economic growth, revealing precisely where the present study could contribute to the current body of knowledge. The section confines the discussion to the determinants of FI that are inadequately discussed in literature and the contribution to, and associated benefits of focusing on them for policy formulation, implementation and evaluation processes. Section 3.6 discusses the models and forms of saving. Section 3.7 concludes the chapter.

3.2 THE FUNDAMENTAL ROLE OF FINANCIAL ACCESS

The existing literature has considered the role of financial development on economic growth (King & Levine, 1993a; Demetriades & Hussein, 1996). Financial markets play

a vital role in providing basic services in the modern economy, particularly in the processing of funds from surplus units to deficit units. Developed financial systems can help to promote economic growth (Levine, 1997). Although FI has recently become a key issue, there is still much progress to be made. In this regard, Kumar (2013) revealed that increases in banking networks have a positive impact on FI. Furthermore, Beck *et al.* (2014) found that an increase in the number of bank branches increases efficiency among the banks as well as showing a positive increase in the growth rate. Financial inclusion is a way to utilise financial services at a low and affordable cost, and to reduce informal accounts (Gwalani & Parkhi, 2014).

Financial access allows individuals to take advantage of business opportunities, invest in education, save for retirement, and insure against risks (Demirguc-Kunt & Levin 2007). The old development philosophies' method of production underscored the role of disparity and prosperity in the first phase of a nation's economic expansion. Kaldor (1957) affirmed that wealthy individuals had a greater marginal propensity to save than the marginalised, In addition, Kaldor (1957) maintained that incentives were necessary to reward productive efficiency, which was essential for wealth centralisation, resulting in a major trade-off between social justice and efficiency.

There was empirical substantiation from the US and numerous OECD (Organisation for Economic Co-operation and Development) nations that supported the Kuznets postulation that income disparity rose in the initial phases of expansion up to the 1970s, particularly, in the developed nations. The subsequent years, saw a downward trend in the experience of equality. The perspective of inequality in growth was criticised by numerous researchers using cross-nation regressions that found an adverse relationship between the inequality measures and the regular proportion of development (Alesina & Rodrick, 1994; Persson & Tabellini, 1994).

For example, South Korea and the Philippines seemed quite alike in terms of development in the early 1960s, excluding the income disparity levels. In the following 30-year period, GDP in the Philippines, that had greater disparity levels, barely doubled, while there was faster growth in South Korea with a fivefold upsurge of production.

In contradiction to this view, Piketty (2014) argues that the Kaldor-Kuznets specifics no longer apply to developed nations, explaining that the share of capital as normally

evaluated and interpersonal inequality of income and wealth have been on the rise. There may be differences in the nature of data and interpretation, thus causing variations in the pattern (Stiglitz, 2014).

New development theories focusing on credit market imperfections were developed explaining the negative effects of inequality on growth. In imperfect capital markets, the poor with high marginal productivity of capital are unable to participate in educational activities and are limited in their job-related choices (see Chakraborty, 2010; Demirguc-Kunt & Levine, 2008; Aghion & Bolton, 1997; Galor & Zeira, 1993; Banerjee & Newman, 1993). These models reveal that financial exclusion contributes to a vicious cycle of persistent income inequality and poverty. The literature also shows that inclusive, effective and sustainable financial systems remove capital market imperfections. The argument resonates with the suggestions of new theories putting financial sector reforms at the core, and promoting FI as a development agenda.

There is widespread empirical evidence suggesting a substantial and strong association between financial depth and economic growth (see Karimo & Ogbonna, 2017; Demirguc-Kunt *et al.*, 2006; Rajan & Zingales, 2004; Beck *et al.*, 2000; Demirguc-Kunt & Maksimovic, 1998). Economic theory submits that the monetary structure is an engine of development, and as the financial sector offers appropriate credit facilities to individuals and the productive sector of the economy, inclusive economic growth is experienced.

Recent studies show financial depth has value for the impoverished, and does lead to decreased income disparity (Cheema & Sial, 2012; Beck *et al.*, 2004; Honohan, 2004b). In a rural and urban study in Pakistan, Cheema and Sial (2012) showed that growth had a significantly robust adverse association with poverty and disparity; and disparity had a noteworthy positive connection with impoverishment. On the contrary, Dollar and Kraay (2002), Ravallion and Chen (1997), and Deininger and Squire (1998) maintain that expansion has no influence on inequality. However, the theory focusing on the purpose of broader financial access provides little guidance in terms of the factors contributing to FI in different African nations. In addition, it is evident that financial access promotion is complemented by the comprehensive and credible measures of FI to achieve greater access.

The topics of financial sector development, financial liberalisation and universal financial integration have been receiving attention from economists, academics and policy-makers in the last five decades because of their effects on general economic performance. In the initial neoclassical evolution literature, the financial system was considered to be a channel for household funds to the productive sector. In this view, McKinnon (1973) and Goldsmith (1969) proposed the robust features of financial services. Following these seminal papers, the empirical and theoretical literature has concentrated on the function of a well-organised monetary structure as a prerequisite for an open and robust economic system (Adeoye, 2015; Adeoye & Sangosanya, 2015; Adeoye & Saibu, 2014; Mirdala, 2011; Demetriades & Andrianova, 2004; Godhart, 2004).

The development of a robust economic system is a result of an efficient inclusive financial system. The transformation of the financial sector involves the promotion of competition, market-based procedures and the easing of regulations. The aim of such a transformation is the building of a stable and robust system, which is a prerequisite for the amassing of funds leading to the alleviation of poverty (Adeoye, 2015; Johnston & Morduck, 1999). Therefore, it is evident that African countries have to formulate policies for the development and deepening of their financial systems to enable them to achieve their poverty-reduction objectives and FI goals. By mobilising savings, facilitating payments and promoting the efficient allocation of resources, the financial sector stops the chain of poverty by playing an important role in broadening financial access and increasing FI (Zhuang *et al.*, 2009).

Several studies have shown the importance of FI for individuals, reinforcing the political and economic basis for policies promoting FI. Various scholars, such as Demirguc-Kunt and Levine (2007), Aghion and Bolton (1997), Banerjee and Newman (1993), and Galor and Zeira (1993) developed models demonstrating how financial exclusion can be detrimental and can lead to inequality and poverty. The literature has also established that inclusive financial systems enhance expenditure, profitable investment (Dupas & Robinson, 2013), savings (Aportela, 1999) and individual welfare (Ashraf, Karlan & Yin, 2007).

Nonetheless, literature has not adequately addressed the determinants of FI, particularly the effect of the latest technologies such as social networks. This gap in the literature, requires that various theories need to be analysed, as theories can

explain why different ideas exist. According to Ozili's (2020) findings, a study based in problem-driven social science research can use one or multiple theories to analyse a problem and solve it. This suggests that the theories for describing a FI problem may differ from the theories for its solution. In the current study, theories help to explain what FI objectives should be and how to improve on them. Theories helped to explain the current problems of financial exclusion and the abnormal deviations that exist in practice, so that a coherent and comprehensive system of principles for FI could be developed.

According to Ozili (2020:3), financial services delivery uses the necessary technology in combination with other inputs to meet the needs of clients. These services are delivered in an effective, predictable, reliable and customer-friendly manner (Tang, Gu & Whinston, 2012; Hirschland, Chao-Béroff, Harper & Lee, 2008). According to Hilgert (2003), the latest trends in technology and personal financial management influence FI. Technology is a major enabler in the process of providing banking services to the needs of a larger section of society (Hogarth & O'Donnell, 1999).

The analysis of the data related to FI practice should support or refute the discussed theories. For example, according to Caldieraro, Zhang, Cunha and Shulman (2018), internet banking helps to build an inclusive financial system in a country by providing an easy way to access banking products and services. Furthermore, Montmarquette and Vietnnot-Briot (2012) postulate that by building a social media presence, advisors can build credibility, engage with prospective clients and network with others.

In view of the previously mentioned, the current study considered the contribution of social networks to FI. To achieve the objectives of the current study, the following variables were used to investigate the influence of social networks on FI: financial advice, internet access and social media. Financial advice was incorporated, as financial firms around the world are taking a novel, centralised virtual approach offering high-quality personal financial advice to clients without a relationship manager (Dimitriu & Guesalaga, 2017).

The section below discusses the relevant financial advice, internet access and social media theories.

3.3 THEORIES OF SOCIAL NETWORKS

The social networks of internet users differ somewhat from the networks existing in the real world where people have in-person contact with each other (Musiał & Kazienko, 2013). Although social networks on the Internet have been studied in many contexts and various definitions have been created, there is no one coherent and recognised model of social networks on the Internet. Furthermore, different researchers name these networks differently, for example, they are called: computer-supported social networks, online social networks, web-based social networks, web communities, or virtual communities (Min-Sook, Jong-Kuk & Yong, 2015; Musiał & Kazienko, 2013).

Theories are required to achieve a high level of synthesis between the objectives and the determinants of FI. The set of theories would provide a system of ideas that can explain how policies are formulated to achieve the FI objectives. The theories are discussed below and in each group, several theories are explained. These theories can consolidate the recent technological developments and idealistic debates on the determinants of FI.

3.3.1 Social network theories and models

Developments in the latest technology have ushered in social networking that has significantly transformed the manner in which people, organisations and communities interact and connect. The term 'social network' is defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content" (Kaplan & Haenlein 2010:61). Based on the applications, individuals then arrange exchanges and share material in a computer-generated community. The social networks' advancement has contributed to shaping individuals' links and contacts through diverse social network podiums (Colliander & Dahlén, 2011).

The advent of social networks has brought a new set of communication modes for the different trades that are challenging traditional operations and procedures (Hanna, Rohm & Crittenden, 2011). The significant difference is that one-to-one mob customisation has increasingly grown to be the norm and has replaced the one-to-several business advancement framework. In addition, in this technological age, the

virtual customer review has grown to be a crucial benchmark by which a marketer formulates a marketing strategy.

Social networks can serve as a tool for firms to facilitate internally or externally with their customers, peers, organisations and business associates, and is also concerned with product improvement (McBride, 2001; Porter & Donthu, 2008). Social networks can be useful in collective education and creativeness (Peppler & Solomou, 2011) and the formation of information distribution platforms (Fernando, 2006; Kasavana *et al.*, 2010; Yates & Paquette, 2011). The media can be applied in marketing approaches for product promotion (Jin, 2012; Laroche *et al.*, 2013) and in the application of corporate discussions in financial organisations (Bonsón & Flores, 2011). Firms and individuals should be ready to adopt the prospects and challenges brought by social media. The next section discusses the key social network theories and models. These provide insight into how social networks can contribute to FI.

Several theories and models have been applied in existing technological community studies to investigate the socio-psychological behaviour of consumers and other participants of social networks. Discussed below are three groups of theories, social behaviour, personal behaviour and mob communication. Discussed in each group of theories are several theories that enlighten the determinants of FI.

3.3.1.1 *Personal behaviour theories*

This set of accepted models and theories in the literature related to social networks clarifies human behaviour at a personal level. The key theories and models that help to explain financial behaviour are listed and discussed as follows:

- **Personality Traits:** this theory explains the characteristics that influence user behaviour. According to Digman (1990), the Five Factor Model of Personality Traits can be summarised as ingenuousness, friendliness, thoroughness, agitation and socialness that collectively or separately increase the behavioural objectives of the users of social networks. Examples of studies done include that of Labrecque, Markos and Milne (2010) and Zhong, Hardin and Sun (2011).

- **Technology Acceptance Model (TAM):** this model was advanced by Davis (1989) and helps to clarify the necessity and application of innovative technology, given people's approach to its implementation. The model was applied in social

media researches in investigating the same in relation to a number of social network technologies (see Casaló, Carlos & Guinalíu, 2011; Kwon & Wen, 2010).

- **Theory of Reasoned Action (TRA):** This theory was propounded by Ajzen and Fishbein (1980) and Ajzen (1985) and predicted people's behaviour centred on the combined efforts of their subjective usual ways and perspectives. The model is mentioned in various social network studies and gives more detail on the scenario where individuals willingly use and work in social media events.

- **Theory of Planned Behaviour (TPB):** this theory is an addition to TRA and was established by Ajzen (1985). It suggests that behaviour control is applied to lessen the influence of assertiveness and subjective customs on conduct. In a study on social media, Casaló, Flavián and Guinalíu (2010) and Chang and Zhu (2011) employed the TPB philosophy to forecast consumers' actions.

3.3.1.2 *Social behaviour theories*

This set of philosophies applies to communal behaviour, and the key theories are discussed below:

- **The Social Aspects Theory:** the theory points to all communal aspects, specifically social effects (Kelman, 1958), social capital and social recognition (Chang & Chuang, 2011; Portes, 1998), communal ties, and interaction. Since internet community is determined by volitional behaviour and socio-psychology, social factors are used to research users' intentions, attitudes and decisions in relation to the usage or adoption of internet community platforms (Cheung & Lee, 2010).

- **Social Loafing Theory:** is utilised in conjunction with social networks in internet community researches. A study by Latané, Williams and Harkin (1979) revealed that a person applies less exertion in group set-ups than individually, and therefore, they invented the phrase 'social loafing'. Social media is an intermediation for combined exertions, where the extent of individual input is negligible. Shiue, Chiu and Chang (2010) implemented the model in a study on group cohesion in online platforms.

- **Social Power** is the five bases of power that French and Raven (1959) developed. The five centres of authority include: authentic, coercive, denotation, reward and adept power. According to Wei (2009:540), social power is the blogger's ability to

affect other audiences, as many as possible. This confined definition was used to enlighten the number of individuals that are influenced by social power.

3.3.1.3   Mass communication theories

A mass statement uses conspicuous domination of an individual's behaviour or actions. According to McCombs and Guo (2014), there are two key mass communication theories, as discussed below:

Para-social Interaction (PSI): This model was applied in film media and television in the 1950s in the study of celebrities' influence on consumer behaviour. Eighmey and McCord (1998) initially detected the theory on the internet while doing research on the proportion of website visits where PSI was connected. Colliander and Dahlén (2011) applied PSI to research customer reaction in purchase intentions and product attitudes.

Uses and Gratifications Theory (UGT): is a model of mob statement used to understand the behaviour of customers to traditional media (Eighmey & McCord, 1998). As a theory, UGT has attracted the attention of social media researchers mainly in the investigation of customer satisfaction needs (Chen, 2010; Porter & Donthu, 2008).

The following are the five main assumptions of UGT:

(1) Media is used for gratifications or satisfaction;

(2) The audience is dynamic and result-oriented in their media consumption;

(3) Media competes with other means of need gratification;

(4) People understand their personal media motives, use and interests; and

(5) The audience can make conclusions regarding the value of the media content.

The fourth assumption that people appreciate the use and motives of media is one limitation of the theory. People are not always aware of all the uses of media (Moreno & Koff, 2016) and such an opinion is centred on the scholarship notion that audience members are inactive, that is, they do not participate in any way. In the application of social networks, lack of understanding of media usage and the inability of audiences to communicate their thoughts may require some guidance or advice.

3.3.2 Social networks and behaviour change

Banks often advertise and encourage the benefits of virtual financial advice. Industry practitioners frequently claim that this type of advice can influence, among other things, investments, savings, financial product selection and risk tolerance (Montmarquette & Vietnnot-Briot, 2012). Financial advice done through social networks can enhance peace of mind and financial confidence.

A financial mentor not only teaches someone financial knowledge, but also inspires the individual to make appropriate financial decisions that will improve his or her standard of living (Xiao *et al.*, 2004; Hilgert *et al.*, 2003). Furthermore, the desired financial behaviours will result in financial fulfilment (Xiao *et al.*, 2006). Therefore, appropriate financial advice or educational programmes can achieve positive monetary behaviour.

Consumer finance researchers emphasise that there is need to understand how and why consumers change their financial behaviours to make significant progressive financial actions. Although there are several behaviour models in social attitude literature (Armitage & Conner, 2000), there are two that are linked to the financial services described below. The first one is the Theory of Planned Behaviour (TPB) that aims to comprehend and envisage human action (Ajzen, 1991). The second one is the Trans-theoretical Model that has the objective of helping individuals to attain progressive behaviours and to change adverse behaviours (Prochaska, DiClemente & Norcross, 1992). Financial behaviour refers to any form of human behaviour related to money management (Xiao *et al.*, 2006; Hogarth, Beverly & Hilgert, 2003). These financial behaviours include saving, credit and cash.

The Theory of Planned Behaviour (Ajzen, 1991, 1985) emanated from the concept of rational deeds (Fishbein & Ajzen, 1975). The TPB is more appropriate when the actual control and probability of success of behaviour performance are suboptimal. The TPB's main input is the notion of perceived behavioural control that is described as somebody's opinion of the challenge or simplicity of acting in a particular way (Ajzen, 1987). The contribution is an addition to the subjective norms and attitudes that comprise the Theory of Reasoned Action. Moreover, both models are founded on the idea that individuals make reasoned and logical decisions to behave in a certain way by evaluating the available information. One's behaviour or action is determined by a

person's plan to be involved and the view that the behaviour is within his/her control. This theory is applied in financial decision matters to enhance FI levels, as financial advice can lead to changes in terms of financial decisions or perspectives.

The Trans-theoretical Model, advanced by Prochaska and Di Clemente in the 1970s, emanated from research that examined the experience of smokers that quit by themselves, while others needed more action. The study aimed to appreciate why some individuals were able to quit by themselves. It was found that individuals quit smoking if they were prepared to give up the habit. The Trans-theoretical Model (TTM) is an intentional change model that looks at an individual's decision-making. The model assumes that individuals do not change their behaviours decisively and quickly.

The TTM posits that a behaviour change, particularly habitual behaviour, occurs uninterruptedly through a cyclical process. In this model, behavioural constructs and theories can be linked to different stages of the model. The model postulates that individuals go through the following six steps of transformation: pre-contemplation, meditation, preparation, action, preservation and termination. At each stage, there is a different intervention strategy that is effective at taking an individual to the next stage of transformation, and so on, successively through the model to reach maintenance, the perfect phase of behaviour, as discussed below.

- Pre-contemplation: At this stage, the individual has no intention to take action in the near future, which could be up to six months. The individual is often unaware that his/her behaviour has problems or contributes to negative consequences. At this stage, people underestimate the advantages of changing behaviour and they stress the disadvantages of changing behaviour.

- Contemplation: At this phase, the individual intends to change behaviour in the near future. The individual now realises his/her behaviour has problems and takes cognisance of the pros and cons of behaviour change, stressing both. However, the person is still uncertain about changing their behaviour.

- Preparation: At this point, the individual is prepared to change his/her behaviour in the following 30 days. Individuals begin taking small steps toward behaviour change, believing that transforming behaviour can result in a better life.

- Action: This time, people have just changed their behaviour, that is, in the last six months. In addition, the individual intends to keep on moving toward behaviour

change. This is exhibited by the person modifying the problem behaviour or acquiring positive behaviours.

- Maintenance: At this point, the individual has sustained his/her behaviour transformation for some time (at least six months) and plans to continue the behaviour change onwards. The individual is wary of relapsing to the former phases.

- Termination: Eventually, the individual has no intention to relapse to his/her old negative behaviours and is certain of not relapsing. As this stage is seldom achieved, people tend to stop in the maintenance phase.

Although TTM may be useful in financial advice research, it has several limitations. The model leaves out the social perspective where transformation may occur, for example, social media influence and income. There is no clue as to how FI levels can be improved. The lines between the stages are subjective, since there are no criteria of determining a person's stage of change.

The TTM helps with the approaches towards financial development by addressing individuals at different phases of making a financial choice. Strategies for each stage can be tailor made to involve programmes or messages targeting people/population at some level of motivation and knowledge. The TTM inspires the valuation of the present phase of transformation and reveals the backsliding in an individual's course of making a choice.

The two theories discussed have been used to investigate some financial behaviours and populations, but they can still be used in more behaviours and diverse populations. For example, to encourage the online deposits of government allowances distributed by the Federal Government, the US Department of Treasury implemented the Go Direct Operation.

Researchers, academics and consumer analysts can work with financial institutions and government ministries to use the models in designing proper outreach and education strategies so that these social activities can have more influence. The TTM is applied in assisting consumers to shift from adverse behaviours and to develop positive financial behaviours phase by phase.

A strategy centred on social networks can be formulated to address all people, emphasising some approaches that are relevant to the particular behaviour transformation phases to allow for a more effective social impact and approach. The all people method also requires personalisation and may take the form of online self-assessment instruments that reach multitudes of people but that provide every consumer with a personalised answer (O'Neill & Xiao, 2006).

The social network and financial advice can be complemented by an individual's internet access (Mas-Tur, 2016). According to Mas-Tur (2016), there are prospects of using internet channels and applications to increase FI. The Internet can complement social media and financial advice in increasing FI in Africa. The discussion of internet theories can help to explain, predict, and understand the phenomena, and extend existing knowledge on FI.

3.3.3   Social networks and online community

Online community and social networks may complement each other in achieving FI goals. Many studies on FI improvement suggest that there are bottlenecks that impede the healthy welfare progress of individuals and small firms. This includes being unable to access formal or outside funds to fulfil their financial requirements and sustain development (Nowak, Ross & Yencha, 2008; Hall & Mishkin, 1982; Caldieraro *et al*., 2018). The question that arises is: Why is this the case? According to Chen, Gong, Chu and Cao (2018), this can be ascribed to information asymmetry. Information asymmetry or the agency problem between lenders and borrowers results in financing challenges hindering the financial development of most individuals and small firms.

In the process of financing, information asymmetry limits financial development growth. For individuals without the required documentation, income, assets, and so on, the problem attracts more attention and becomes more conspicuous. The increasing body of research has suggested an array of theoretical framework, and has used a variety of empirical theories to gain an understanding of individuals' financial challenges and to approximate the vital effects of information asymmetry on business development (Holmstrom & Tirole, 1997; Holmstrom, 1979; Jensen & Meckling, 1976).

Feltham and Hofmann (2007) propounded a Principal–Agent Model in a numerous task-numerous agent structure. As revealed in the Principal–Agent Theory, information asymmetry is unresolved in their model but a substitute is developed using

appropriate inducement setup schemes as advised in their study. Holmstrom and Tirole (1997) propounded an inducement scheme of monetary intermediation, where businesses, people and financial players have limited capital. All forms of inadequate funds affect mostly poor individuals and firms.

The existing literature has studied financing problems related to firms, and information asymmetry or internet finance in the process. However, to the knowledge of the researcher in the current study, there is a lack of studies that have directly investigated how the Internet itself influences the information asymmetry problem between lenders and borrowers. There is little literature also on the effects of the Internet on FI in developing countries.

In summary, the social network is not a substitute for conventional mainstream media but it can enhance the efforts of the mainstream media. The social network can offer substantial benefits in terms of customer engagement and feedback, and can be utilised to strengthen relations with external and internal stakeholders. The existing social network theories have explained the characteristics influencing user behaviour, ease of use of new technology, social influence and the intermediary functions of these communication platforms. However, none of these theories can explain the influence or effect of social network on FI or development. This implies a space in the extant literature that requires filling.

On social networks, financial advice can be supplied from anywhere, as long as there is a connection. Financial advice can complement social media use in influencing a person's financial decisions. The positive action is achieved by the provision of relevant information (Xiao *et al.*, 2006). Hence, the need to discuss financial advice theories to understand and explain the financial behaviour process. This will also guide the development of appropriate financial services, thereby improving FI levels. The relevant financial advice theories and models are discussed in the next section.

To fill the gap in the literature that has been identified by the current study, a model is required which explains why the research problem exists. In the current study, the problem is the low FI levels in selected African countries. The theoretical framework below describes how the Harrod-Domar Models and other theories explain why the research problem under study exists.

3.4   THE HARROD-DOMAR THEORETICAL FRAMEWORK

The Harrod-Domar Model provides an appropriate structure for enlightening the association between FI and monetary system expansion. The Harrod-Domar framework demonstrates how monetary system improvement makes it likely for nations to build resources for investment purposes. The Harrod-Domar framework also demonstrates the significance of saving and investment in a developing economy.

Harrod (1939) propounded the model independently. The model was driven by the quest for a growth theory. The growth model states that trade and production expansion is correlated to savings. Then trade and production are adversely linked with capital-output. This suggests that there is no justification for an economy to experience balanced development.

However, the Harrod-Domar Models are grounded on a number of assumptions. It is assumed that there is no gap in the adjustment of economic variables, implying that savings, income, expenditure and investment adjust themselves completely in the same period. There is a 'closed economy' that rules out trade restrictions and other complications caused by international trade. The Marginal Propensity to Save (MPS) and Average Propensity to Save (APS) are equal, that is, MPS = APS or $\Delta S/\Delta Y = S/Y$. The capital-output ratio is constant, in other words, the law of constant returns works in the economy because the capita-output ratio is fixed. The economy functions with no government interference. Investment, income and savings are over and above the depreciation. Depreciation rates are excluded in these variables. In addition, a full-employment level of income exists. Investments and savings are equal in ex-post and ex-ante sense, that is, there is a functional equality, as well as accounting between investments and saving.

The aim is to get the value for growth rate (g). Assuming output is proportional to capital, K/Y is constant

Where,

K is capital

Y is output.

Let v = K/Y………………………………………………………………….………… (1)

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Where, v is capital-output ratio.

Rearranging the above $Y = \frac{1}{v} \cdot K$ ……………………………………………………… (2)

Equation 1 is the production function.

Since v is a constant:

$\Delta Y = \Delta K / v$

Therefore, by substitution $g = \Delta Y/Y = \Delta K/K$.

This implies that output growth equals capital growth. This relationship also means that there is a 1 to 1 association between output and capital.

Net change of investment input (ΔK) equals investment (I) less capital depreciation d.K.

$\Delta K = 1 - d.K$……………………………………………………..……………………….... (3)

Where, d is depreciation rate.

Since all savings (S) eventually find their way to investments, we have S=I and assume savings is a fixed proportion of income, we have $S = s.Y$ …………………………… (4)

By plugging the two equations (1) and (2) into equation (3), we get

$\Delta K = 1 - d.K = s.Y - d.K = s.Y - d. \ v.Y = (S - dv).Y$

To get growth rate g, we combine equation (2) and (4).

$g = \Delta Y/Y = (s - dv).v = \frac{s}{v} - d$ ……………………………………………………… (5)

Where,

s is savings rate.

v is capital output ratio.

d is depreciation rate.

Since, $g = \Delta Y/Y = \Delta K/K$. it implies that GDP growth will be proportional to investment in GDP.

It is imperative to mention that funds come from savings. Without savings, there are no funds for investments. In the absence of savings (high financial exclusion levels),

governments/firms may rely on foreign aid or foreign investors, or there may be barely any investment.

In equation (5), since v and d are constant, S (savings rate) can be changed. The Harrod-Domar Model is relevant in that the higher the savings rate, or the bigger the savings, the faster the rate of economic growth. The higher the FI levels in a developing country, the easier it becomes to influence the saving rate in the economy.

Therefore, the higher the savings rate, the more investments in physical capital (see Figure 3.1 below). In an economy, how can high levels of savings be achieved? The immediate solution for many countries in Africa is pushing for higher levels of FI. According to the Harrod-Domar Model, investments improve production output in an economy, thereby increasing development. The capital-output percentage reveals the quantity of capital required to generate a certain output. The capital output ratio also shows the efficiency of using machinery. A lower capital-output ratio reflects higher levels of efficiency, and results in higher economic growth because fewer inputs produce higher outputs.
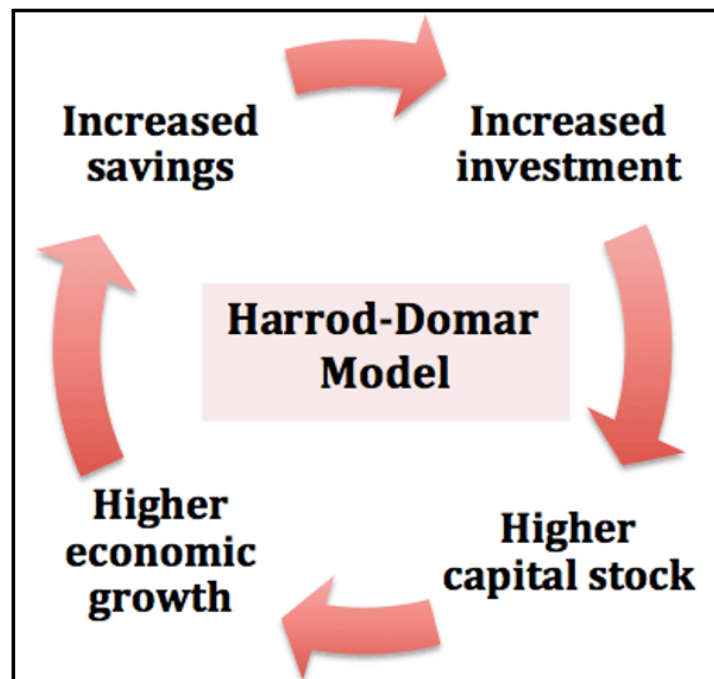
Figure 3.1:   Association among foreign capital flows, financial markets and development

Source: Economics Help (2015)

The financial systems perform a critical role in providing savings, loans, transactions, and risk amelioration services for a variety of needs. Broad financial structures permit wide connections to suitable financial products that are set to help the underprivileged and impoverished segments of the society (Demirguc-Kunt & Klapper, 2013). For example, having access to formal savings and credit facilities can enable funding of productive activities such as enterprise development and schooling. When individuals lack access, they tend to depend on informal or own savings for investment. With limited resources for productive activities, persistent income inequality prevails, resulting in slower economic growth. Higher FI levels result in increased savings for more investments to build up higher capital stock, and ultimately, higher economic growth (see Figure 4.1 above). The fact that the relationship among savings, investment and economic development is explainable, makes the Harrod-Domar Model relevant to this study.

Though the Harrod and Domar Models are different in detail, they have the same substance. The Harrod's model is the English version of Domar's model. However, the Domar growth model has a particular resemblance to the model of Harrod. Harrod considered Domar's design as a rekindling of his own version seven years later. The models emphasise the important conditions of attaining and sustaining steady growth.

Harrod and Domar ascribe an essential role to capital accumulation in the growth process. The models stress the dual role of capital accumulation. FI results in higher levels of savings as more capital for investment builds up. Although the Harrod-Domar models explain the importance of capital accumulation, there is no focus on how the savings come about. The Financial Intermediation Theory discussed below closes the gap by supporting that the savings process is centred on effective and inclusive financial systems.

3.4.1 Financial Intermediation Theory

The Financial Intermediation Theory, propounded by Gurley and Shaw (1960), is a common theoretical structure that describes the task of FI in unequivocal terms. This model complements the Harrod-Domar, as it highlights the need for individuals to use formal financial services. The goal of the model is to elucidate the purpose or function of financial intermediaries. Gurley and Shaw (1960) postulate that the savings/investment process is hinged on an effective and efficient financial sector in

capitalist economies. Financial systems and players play a critical role in economic growth, since they offer the optimal distribution of resources. Financial players accept deposits from savers/consumers for the on-lending to firms (productive sector) in need of resources for investment purposes.

The Financial Intermediation theory is grounded on the Agency model and framework of informational asymmetry. The following classes of aspects explain financial players' existence: lack of comprehensive information in time, high transaction costs and the method of regulation. Informational asymmetry is the dominant factor in studies on the subject of financial intermediation. Informational disproportionateness maybe ex ante, causing the complication of adverse choice, or ex post leading to costly verification and auditing procedures.

Information asymmetry produces market imperfections, contrary to the Theory of Efficient Markets from the Arrow-Debreu perspective. An inclusive financial system is expected to be highly efficient where all investors have access to the same information. The Perfect Financial Markets Models helps to shed light on the ideal market required for FI.

The Perfect Financial Markets Model in neo-classical economics has a number of assumptions. There are not any competitive advantages at participants' level; there are no discriminatory fees. There are homogeneous financial securities, transactional and dividable. The placement/borrowing circumstances are the same for all. There are no transaction costs for finding information. No single participant influences prices; and all participants have access to all information concerning the issues and features that influence the future or current quality of financial assets. In real-life information, asymmetry is an important element in FI matters. This is because some parties possess more information than others do.

Informational asymmetry results in the advent of certain arrangements of business expenses. The major role of monetary players is to eradicate these costs. Diamond and Dybvig (1983) argued that financial players (banks) are an 'alliance' that ensures that people who save up against the exposures could influence their liquidity status. According to Leland and Pyle (1977), financial intermediaries are an alliance working on the dissemination of facts. Diamond (1984) maintained that the monetary alliance function sanctions managers or people who save up and can attain significant

economies. The savers entrust their available funds to the intermediaries for investment. The depositors are able to access their monies at any time under the agreed terms.

The Financial Intermediation theory model explains the association between the bank and the borrower (the major issue of concern in tracking approved credit), as well as the complication of moral hazard and adverse choice that may also have an influence on FI levels. Furthermore, in the bank and depositor relationship, special focus is on aspects that influence depositors to save more or withdraw. The theory is also of importance as it analyses the function of financial intermediation and its impact on trade and production expansion. The theory also complements growth philosophies, for instance, the Harrod-Domar Models, as it explains how the financial sector influences the economy.

Many studies have also highlighted the intermediary role in attaining higher stages of trade and industry expansion, and the influence of policies on their effectiveness. The relationship between the banking institution and its customer that is highlighted in this theoretical approach makes the Financial Intermediary Theory relevant to this study. However, the approach does not explain how financial advice can improve the opening and usage of bank accounts, and this area still needs to be explored.

Another approach to financial intermediation is based on transaction charges. Fama (1980) and Benston and Smith (1976) used this approach. The approach is rooted in the varieties of technologies used by participants in accessing or delivering services. The transaction costs referred to also include the costs related to investigation, evaluation and monitoring. The financial sector then changes the characteristics of financial instruments, providing liquidity and other investment prospects to allow for a divergence in placements. However, the strategy does not explain how technologies or use of social networks can be of relevance to FI levels. There is still a gap on how social media, internet access and financial advice determine FI in African countries.

The third approach to financial intermediaries was developed by Merton (1995) and Guttentag and Lindsay (1968), and is grounded on the regulation of the saving, monetary creation and financing of the economy. Methods of regulation influence the solvability and liquidity of intermediaries. The regulations and policies determine the efficiency of the financial sector or its effectiveness in its intermediation role (Diamond

& Rajan, 2000). The approach of regulation mainly affects the supply-side aspects of FI. The notion that the financial sector or intermediaries play a key part in economic development makes the Financial Intermediary Theory relevant to the current study.

The efficiency in the financial system is brought about by high levels of FI. The Financial Intermediation Theory reveals the importance of formal financial systems to allow for economic development. The Harrod-Domar Models emphasise savings, highlighting the need for formal financial systems. Savings come through financial intermediaries and intermediation is enhanced by FI. The efficiency of formal financial systems is linked to the levels of FI. A number of factors determine FI, which is the focus of the current study. Discussed below are studies on the determinants of FI.

3.5   DETERMINANTS OF FINANCIAL INCLUSION

All the information or observations from FI practice is understood in terms of a prior, often implicit theory. This idea is consistent with Popper (1976) who argued that theory should precede observation. Data related to FI can be obtained by using direct observations, interviews and surveys. The data obtained from FI practice and the analysis of such data should support or refute the above-discussed theories. Better theories of FI should replace those that are poorer, if they explain existing observations more effectively. In addition, the empirical modelling of FI determinants should take into account the nature of the data and the magnitude of the explained and unexplained variations in an FI model.

Due to FI gaining in importance in several countries across the world, studies have been evaluating its determinants, measurements and effects. There is a need to investigate the factors influencing FI in an area, be it at district, regional or country level. The reason for this step is that the formulation and implementation of a policy requires the availability of adequate information to allow for an informed decision.

FI or the access to an official financial system is influenced by different factors. Demand-side factors are those that play a role in influencing consumers to use financial services, or that affect their ability to make effective, informed financial decisions (Paramasivan & Ganeshkumar, 2013). Supply-side factors are related to the method and function of the monetary system and its design, which results in consumers being financially excluded or included (Kumar, 2013). The supply factors

can further be broken into structural and policy-related factors (Evans & Adeoye, 2016). Structural factors influence the financial services' costs and strategy which is linked to features permitting conditions for FI. There is no consensus on the determinants of FI in literature.

The literature has affirmed that unintentional monetary marginalisation and intentional monetary marginalisation can be found (De Koker & Jentzsch, 2013; World Bank, 2011). The intentionally left out do not utilise official financial products due to a lack of need for them, religious and cultural aspects (Beck *et al.*, 2005). Those intentionally financially left out lack confidence in the financial system or face hindrances such as unsuitable product structure, affordability, and being unable to meet the requirements (Dittus & Klein, 2011; European Commission 2008). In addition to these classes of the financially excluded, literature points out the existence of those who voluntarily withdraw. Those who self-withdraw are bank clients who once accessed financial services but later withdrew from the formal financial system. According to the FinScope (2014) survey in South Africa, more than three million individuals had withdrawn from the formal financial sector. Ellison, Whyley and Forster (2010) argue that the withdrawals are a result of costs, problems in managing spending, a lack of confidence in banks, unfavourable credit records and unsuitable product features. There is a difference between financial usage and access. Although many people can be encouraged to open accounts, numerous accounts become inactive. Therefore, financial access does not essentially lead to the daily use of the services (Platt *et al.*, 2011).

A study by Ghatak (2013) that aimed to ascertain the demand-side factors of FI in India, using factor analysis, found that several factors influenced FI. The factors include Culture, Properties, Accessibility and Income. Using correlation analysis in the study, Accessibility had the highest correlation to demand for FI, followed by Literacy, Income, Culture, and lastly, Properties. However, after running a multiple regression analysis, the Properties factor was the least important of the five in driving FI. Ghatak further asserted that there is empirical substantiation indicating that robust growth rate is positively correlated with FI. He stated that the economic buoyancy experienced by India was financed predominately by domestic savings. In this study, Ghatak (2013) suggested that as the development of India relies on FI, the more people are aware and availed of financial services, the greater the potential for capital formation.

However, the weaknesses of this study includes that the sample of 500 used in the study is insufficient to draw an inference in a populous nation such as India. The study also was done in a small part of the country leaving out other areas that could have produced different results. Factors, such as social media, were left out that may have a huge effect on levels of FI. Moreover, in Africa, studies have shown that the possession of assets seems to be insignificant in influencing FI.

The provision of credit plays a crucial role in influencing FI levels, since a person can be enticed to open an account to gain access to additional financial facilities. In a study to ascertain the factors influencing access to bank loans in Bolivia, the scholars, Altunbas, Thornton and Kara (2010) found that the following factors influenced credit provision: gender, citizenship status, income, formal employment, age of family head, size of family, and level of education. Using the same data, focusing on borrowing households, Altunbas *et al.* (2010) estimated the probability of getting credit from a formal financial organisation. The study used the Probit Model to examine borrower characteristics that led to credit exclusion from formal financial firms. The findings showed that females and indigenous borrowers are likely to be excluded from the formal loan supplying institutions and pushed to informal credit mechanisms. The results also showed that the higher the level of education, the more the probability of accessing bank credit. In addition, the study showed that those employed in the public sector have high a probability of gaining access to the formal credit market. However, location (urban or rural) did not appear to affect the likelihood of accessing the formal credit market. The finding that location had no effect seems to be inconsistent with the factors affecting FI in Africa, as the institutions consider collateral and costs of monitoring, among others. The demerit of this study is the narrow focus on one product, which is credit.

Several studies have shown education has an effect on levels of FI (Allen, Demirquc-Kunt, Klapper & Peria, 2012; Ghatak, 2013; Clamara, Pena & Tuesta, 2014; Zins & Weiss, 2016). In a study to find factors influencing FI, Park and Mercado (2015:14), found an educational level at primary school level and lower reading/writing level had no influence on FI levels in developing Asia. In the same study, per capita income was found to have an influence on FI. The study advocates the idea of raising income to reduce impoverishment rates. Better financial accessibility is related with lower income disparity, though the approximations are substantial only for some stipulations. On the

contrary, in a cross-country study for 160 countries, Honohan (2008) found a correlation between poverty and financial access but not clearly causal.

Adewale (2011) studied the determining factors of financial exclusion in small enterprises in Ilorin, Nigeria. The study found the factors influencing FI as follows: eligibility, affordability, cultural capital, financial complacency and religious inclinations. Adewale (2011:13) argues that the phobia regarding debt was identified as an explanation for financial exclusion. A questionnaire survey of 450 was used from a small part of Nigeria. The study noted that the limitation of macro-level researches and use of aggregate data may be misleading. To correct the weaknesses that are found in many studies, Adewale investigated the financial exclusion hindrances experienced by micro enterprises in Ilorin, Nigeria. The two major weaknesses of the study are: (1) The study focused on a small area that may not bring a comprehensive/detailed perspective of the real-world situation on the ground, and (2) The area studied was inhabited by predominantly Muslim people who shun the conventional banking products in favour of Shariah-compliant products.

According to King (2011), the unbanked population showed the following characteristics in Nigeria: lack of documentation, lower incomes, lower financial literacy levels, lower education, not possessing a mobile phone, and are more likely to be female. The aim of King's research was to investigate the extent and determinants of demand and supply barriers influencing FI in Nigeria. On the supply side, the number of ATMs (automated teller machines), GDP per capita, access to branches, societal trust and levels of informality had an influence on FI. For example, in the rural areas, individuals found that the distance from a branch was a hindrance to financial access. However, the literature shows that the effect of costs associated with distance can be reduced by applying technology, mobile banking and mobile money agents (Ouma, Odongo & Were, 2017; Lal & Sachidev, 2015; Donovan, 2012). Although the study by King examined both sides of FI (demand and supply), it left out some important factors that include financial advice and social media. The issue that remains outstanding is ascertaining the extent to which social media can influence FI levels.

Using the Global Findex database, Zins and Weiss (2016) investigated the causes of FI in 37 African countries. Using probit estimations, they found that education, gender, income, education and age influenced FI. The strength of the study is that it cuts

across 37 countries making it easier for cross-country comparison, however, the limitation of the methodology is the absence of country-level analysis. The analysis of the factors was not exhaustive, as it did not include variables such as social networks and financial advice. Only three dimensions were used in the study, limiting the scope of FI. The analysis was on a global scale, and not country-specific, considering that countries have different development levels and cultures (Adewale & Afolabi, 2013:7; Demirguc-Kunt & Detragiache, 2005:26).

Allen *et al.* (2012) examined the individual traits and country features related to the utilisation of formal accounts. The study investigated factors influencing FI across individuals and countries. The study found that the richer, the more educated and the older had a greater possibility of operating an account with an official financial firm. In addition, married, employed and separated individuals were more likely to be financially excluded. The potency of the exploration was that it covered 124 000 individuals from 123 countries. One of the weaknesses of the study is the lack of country analysis, as there are differences in culture and economic policies between countries.

Bapat and Bhattacharyay (2016) analysed the determinants of FI in the large city of Pune, India, using a household survey done in a slum area. The study found that the respondents' demographic profile, income, age, occupation, gender, account ratio per household, savings and loan sources influenced levels FI. The study implies that the variable of location (see Martinez *et al.*, 2013; Clamara *et al.*, 2014) may be irrelevant in some cases, as the disadvantaged groups in some urban areas are financially excluded. In another study using a survey sample of 300 households, Sahoo, Pradan and Sahu (2017) investigated the determinants of the FI levels of two districts in India. The study found that the education level of household head, land size, level of income and nature of employment were determinants of FI among tribal people. The weakness of these studies is that the analysis was based on too small samples (202 and 300 households) to generalise the results.

Although the study focused on enterprises, Karpowicz (2014:6) found that collateral, cost of services and lack of savings were the major obstacles to FI in Columbia. The findings are comparable across other regions and countries (Demirguc-Kunt & Klapper, 2012; Dupas & Robinson, 2013). The lack of savings and collateral for individuals causes people to rely on informal sources of credit (Bending, Glesbert &

Steiner, 2009; Zeller & Manohar, 2002). Bending *et al.* (2009:26) found that income levels in rural Ghana influence credit demand, insurance purchase and savings behaviour. The research also established that higher education level, more assets and formal job status boost formal financial product use. The findings confirm the notion that the poorer the household, the more likely it is to be financially excluded. The study also stated that a female-headed family was more likely to be excluded than a male-headed family.

In a quantitative approach study to investigate the determinants of FI in Peru, Clamara *et al.* (2014) found that some groups, such as females, youth and individuals staying in rural areas, had a difficulty in reaching the formal financial players' services. With regard to financial products, mortgages and loans seemed to be more dominant drivers of FI than saving products. The study also reported that formality, age, gender, education, income level and education are significant factors for FI. The findings were consistent with those of Allen *et al.* (2012). However, one demerit of the study is that some factors, such as internet access, social media and financial advice, were not considered.

In a study done in the United Kingdom (UK) to determine the impact of financial education on levels of FI, Lewis and Lindley (2015) found that vulnerable groups with the lowest capability were more likely to be financially excluded. Those with low financial literacy levels were unable to access appropriate financial facilities to satisfy their requirements. The research also discovered the nature of employment also determined whether the person had a formal account or not. The self-employed experienced certain problems such as high levels of unsecured debt, lack of pension savings and financial advice. In the same study, the authors pointed out that there was need for the authorities to ensure that financial education was taught in schools. It was also stated that the following were required: synchronisation of FI policies, more savings invectives, financial advice for the self-employed, and appropriate financial requirements of the susceptible groups. The research focused on financial education for the financially excluded and did not address factors influencing FI.

The outcomes were also consistent with that of Lusardi (2008:17) who also recommended more financial education to certain vulnerable groups in the US, as individuals become increasingly in charge of their financial security and face complex financial instruments. The demographic groups included the African-Americans and

Hispanics who had inferior levels of financial schooling. Financial knowledge influences consumers' financial services choice-making process (Artkinson, 2008:33). One question that remains unanswered is related to how financial advice influences the levels of FI in developing countries in Africa.

In a research to explore the demand aspects influencing FI in Mexico, Martinez *et al.* (2013:15) found lack of and inconsistent income flows and self-exclusion to be the most influential barriers. They found three different types of factors influencing FI, which are: 1) Variables that denote individual vulnerability, education, gender, occupation and income level; (2) Factors that appeared to be associated with inclination towards the informal financial market, including the capability to respond to exogenous shocks and a proclivity to save, and (3) Geographical factors which included community size and location. However, the study had the weakness of focusing on a single country, thereby lacking cross-country analysis.

The scholars, Soumare, Tchana and Kengne (2016) studied the factors of FI in West and Central African nations using data from Global Findex. Their study established that FI in the region was driven by gender, marital status, income, employment status, education, residence area, family size, age, and level of confidence in financial organisations. The West and Central African region differ from other parts of Africa in that being male and/or married were positively correlated to FI. Earnings were weighty in West African nations and the entire continent. It was also reported that household size is negatively correlated to account use in West Africa but not significant in Central African nations. FI indicators such as saving, usage and borrowing were significant for Africa, although in Central Africa or West Africa they differed on the levels of significance. The findings were in line with other studies on the factors influencing FI that used the Global Findex database (see Klapper & Singer, 2013; Allen *et al.*, 2013; Demirguc-Kunt *et al.*, 2013; Anson *et al.*, 2013; Allen *et al.*, 2012; Demirguc-Kunt & Klapper, 2012). One demerit of the study is that of using a single proxy for FI, limiting the scope of FI, instead of using different proxies.

In a study to analyse the socioeconomic, terrestrial, and population features of individuals in Kenya, Johnson and Arnold (2012) found the following factors strongly linked to bank access: age, employment, gender, education and location (urban/rural). The results concur with the results of other studies done around the globe (see Martinez *et al.*, 2013; Clamara *et al.*, 2014; Tuesta *et al.*, 2015). Johnson and Arnold

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(2012:2) argue that technology ushers in lower transaction costs, as it is one of the major barriers to financial access. The study also reported the impact of M-PESA, a mobile phone-linked transaction service. Although the study covered a number of dimensional aspects of FI in Kenya, Johnson and Arnold (2012) did not include the investigation of factors such as financial advice, internet access and social media.

Financial literacy levels undoubtedly have a great influence on FI levels, and the factors affecting the former have an influence on the latter. Financial education is a vital skill for people entrenched in intricate financial environments. The majority of people in the African region suffer from financial illiteracy, and improvements to that aspect on the continent will go a long way towards rectifying the problem (Atkinson & Messy, 2012, 2013; World Bank, 2014).

In a study done in Brazil to craft a model to elucidate the individuals' financial knowledge levels through socioeconomic and demographic factors, Potrich *et al.* (2015) found that gender, educational level, family income, individual income and dependent family members had an impact on financial literacy levels. The findings are similar to other studies that found the same determinants on FI levels (see Zins & Weill, 2016; Fungácová & Weill, 2015; Ghatak, 2013; Adewale, 2011). The findings reveal the need to devise effective actions to reduce incidences of financial illiteracy in an economy, as the same factors that ultimately affect global FI levels. However, the flaw of the research is that it concentrated on the determinants of financial literacy, and not FI per se, and the study was based one country, Brazil, leaving no room for cross-country analysis.

In a study to investigate the influence of belonging to the Islamic religion on the use of formal saving, loan and accounts, Demirguc-Kunt *et al.* (2013) found that Muslims were less probable to utilise formal financial services than those from other religions. The study used a sample of 65 000 people from 64 nations. Religion may influence FI (Zins & Weill, 2016; Demirguc-Kunt *et al.*, 2013). For example, in a study done in Norway, Brekke (2018) reported that there are real possibilities that religious norms against conventional banking influence FI. However, the research did not focus on the actual use of conventional banks. The study by Brekke has several weaknesses that include too small a sample of 707 respondents in a country of more than 5 million, and the study was qualitative and the results do not allow for a meaningful analysis.

Furthermore, research done in Europe is likely to produce different results than would be obtained from an African country.

A study by Naceur Barajas and Massara (2015:25) that aimed to find out if Islamic banking can increase FI, found that in Muslim countries, there are significantly more religious reasons for financial exclusion than found in other countries. However, the usage of services did not increase as quickly, although geographic financial accessibility had increased swiftly within the Organisation of Islamic Cooperation (OIC) nations. Furthermore, regression analysis affirmed a positive correlation to credit for borrowers in financing investment, but the empirical association was tentative and quite weak. Therefore, there is still need to investigate the influence of religion in African selected countries.

In a study to find whether the distances between bank customers and bank institutions have increased in a decade, Brevoort and Wolken (2008) found that distance plays a role in the accessibility, provision and delivery of banking services. Costs of transaction are directly related to the number of transactions and the distance between the customer and service providers. ATMs and online banking reduce the costs of service provision and transaction costs for suppliers and customers, respectively. Brevoort and Wolken argue that although ATMs serve as alternatives for bank tellers, the same is not essentially true for bank branches. For example, for loan transactions, in person interactions are unavoidable and costs for loan monitoring in case of commercial loans are imminent. The use of credit bureaus for hard information on individuals' credit history and automated credit scoring systems for pre-screening, loan originations and loan monitoring decrease the information costs incurred by lenders. The study also found a common tendency towards less personal contact between the bank and the customer. Brevoort and Wolken conclude that distance is still of importance to a subgroup of customers and suppliers. This study has two major weaknesses, which are: (1) The data set used in the study focuses on small businesses and service providers, and (2) The study focused on one developed country with an advanced financial structure. Therefore, the findings cannot be generalised for all countries, particularly those in Africa.

There are existing studies that found that technology has significantly reduced costs of transactions (Elliehausen & Wolken, 1990). Other studies pointed out that transportation costs between the financial institution and the borrower and alternative

financial institutions affect the costs of services and products (Degryse & Ongena, 2005; Degryse, Laeven & Ongena, 2006). Martinez *et al.* (2013:14) argue that although the factor of distance is vital at a global level, in Mexico, that barrier is being overcome due to technological developments. What then is the role of distance in the consumer's choice of an institution, services or products?

The weakness of the existing literature on distance is that the majority of the studies used data on small businesses and not individuals. The variables that affect businesses do not necessarily influence individuals in the same way. The significance of the contribution of distance to FI may differ among individuals, financial institutions and countries.

Charges and earnings are highlighted as the most influential economic elements influencing the use of payment and saving services (European Union, 2008; Beck & De la Torre, 2006; Schreigner & Nagarajan, 1998). There is consensus that economic growth and per capita income raises the necessity for innovative services. Inducements to demand are not limited to economic features but also arise from subcultural factors, leading to voluntary exclusion (Claessens, 2006).

Using the data from Global Findex for 2011, Fungácová and Weill (2015) focused on FI in China, and made further evaluations using the BRICS (Brazil, Russia, India, China and South Africa) nations. The study established that the high levels of FI in China are based on official account usage and savings. The research showed that in the BRICS countries, China led with regard to FI levels, and it was reported that financial exclusion was mainly voluntary (Fungácová & Weill, 2015:19). The study found that income, schooling, gender and age have a correlation with the use of formal loan and other bank accounts in China. Education and income are also associated with the use of alternative sources of credit.

There are studies that found similar results in terms of the gender effects on FI (Demirguc-Kunt *et al.*, 2013; Aterido, Beck & Iacovone, 2013). Demirguc-Kunt *et al.* (2013) maintain that the difficulties for women to financial access also include the non-existence of collateral and inferior financial schooling. The strength of this study is that it used three indicators of FI which are formal saving, credit and account, showing a wider range of FI, unlike other studies that limited the scope to having a formal account (see Martinez *et al.*, 2013; Clamara *et al.*, 2014). Another strength is that of cross-

country comparison, taking the BRICS countries as a sample. However, the study focused on a single country, China, an Asian nation, and the findings may differ from that of other countries or continents.

Using Global Findex Data (2012), Tuesta *et al.* (2015) estimated Probit Models to analyse the associations that existed between FI and certain variables in Argentina. This study considered three dimensions influencing FI levels in Argentina from the consumer perspective. The study found that official financial facilities are used through traditional ways such as outlets and ATMs. The following variables were significant to influencing FI: level of education, income and age. The study is superior to other studies as it used a number of variables as dependent variables, unlike those studies that used only one such as formal accounts. Another strength is that the usage of formal financial products was considered, which is vital in an analysis of FI. However, the study focused on a single country, Argentina, with its unique characteristics, and the results cannot be generalised for every country.

In an investigation of the factors affecting FI in Peru, Camara and Tuesta (2014) established that gender, age, schooling and income were determinants of FI levels. The study comprised of a quantitative perspective of FI in Peru using household survey data. Significant associations were used to find the socioeconomic characteristics affecting the FI of households and enterprises. The study also analysed the sensitivity to some barriers of individuals not using banking services. The results showed that women, young people and individuals living in rural areas faced the most difficulty in accessing formal financial products. Credits and mortgages were more influential in influencing FI than savings products. The strength of the study is that it considered FI at individual and enterprise level. However, the study did not consider other explanatory variables, such as financial advice, internet access and social media that may have significant effects on FI.

In a study to examine the factors influencing geographic exclusion from banking services (and basic bank accounts) in rural communities in Ghana, Osei-Assibey (2009) found that the need for bank accounts were driven by market and non-market factors. These include price, wealth status, literacy level, proximity to a bank, ethno-religion, employment and dependency. On the supply side, the study found that financial institutions are controlled by factors that include market size, stages of infrastructure (communication facilities and energy), market activeness and security

(natural disasters, crime, conflict). In contrast to many studies of FI determination (Zins & Weill, 2016; Park & Mercado, 2015, Tuesta *et al.*, 2015 Clamara *et al.*, 2014), Osei-Assibey (2009:231) found that gender has no influence on FI levels in Ghana. One demerit of the study is limiting the proxies for FI, as the dependent variable limited the scope of FI.

Nature of employment may influence FI in various ways, depending on how wages and salaries are paid. In the study referring to the variable of employment, Schneider and Enste (2000) argue that lawful making of goods and services that are not registered or taxed are likely to include informal finances. The purpose of the research was to establish the connection of sizes, causes and consequences of shadow economies.

Ghosh and Vinod (2016) studied the link between gender and FI in India. On investigating the factors influencing the relationship, the study found that there was a significant variance in financial access and usage of finance by gender in India. Using household data, results showed that woman headed homes were 8% less probable to be financially included and 6% more probable to acquire unofficial finance contrasted to male lead families. On further analysis of the possible causes of such disparity, the study found that nature of employment and education levels were influential in determining FI levels. However, Ghosh and Vinod (2016) and Schneider and Enste (2000) focused on single determinants of FI.

In a study done in Cambodia, Seng and Lay (2018) investigated the influence of mobile phones on FI. The study estimated Probit Models using a FinScope survey (2015) dataset and found a positive significant relationship between owning a mobile phone and being financially included. The study used three proxies for FI, namely, formal account, credit account and saving account. Furthermore, the study revealed a greater marginal effect of smart phones than non-smart phones on FI. The results also revealed that mobile phones are likely to cause households to use official microcredit, particularly for non-agricultural investment purposes. The study was insightful as it provided policy-makers with knowledge on the role played by cell phones in that country. However, the study had the following shortcomings: Only five factors were considered, whereas the study could have included social media, internet access, financial advice and distance from the next bank branch, among others.

In a study by Yoshino and Morgan (2016) to assess factors influencing the financial access of low-income households in Sri Lanka, Germany, the UK, India, Indonesia, the Philippines, Bangladesh and Thailand, policies were suggested to improve financial access. The study also reported the following: market-driven factors: exorbitant costs of financial products in rural areas, absence of convenient access points, and lack of usable collateral. Regulatory factors that included supervisory and capital sufficiency rules, limited the attractiveness of small savings, credit or other financial services. Infrastructure associated obstacles included the absence of safe and dependable settlement structures, fixed or mobile telephone availability and transportation, bank branch network, and ATMs. The study found the following demand-side factors: lack of funds, low financial literacy and lack of trust. Yoshino and Morgan (2016:29) postulate that financial literacy levels in Asia were low, and there could be enormous potential benefits from directing more resources to this region. Financial literacy is also a cause for concern in the UK and OECD countries, and studies suggest that financial education should be taught in schools and specialised financial advice should be provided (Lewis & Lindley 2015:20; Atkinson & Messy, 2013:40). This brings to the fore the aspect of financial advice's effect on FI levels and the need for it to be considered in research.

Beck and Cull (2015) stated that it is problematic to separate the causes of exclusion as they are interrelated in intricate ways. Bankable Frontier Associates (2007) identify the causes of exclusion as discriminatory policies, informational and contractual frameworks, gender, education, income, age and rurality. In contrast, a study on Kenya, found that rurality was insignificantly associated with reduced access (Johnson & Nino-Zarazua, 2011).

Some studies and surveys have shown people or households with access to formal savings products with other reasons for being financially excluded. Some surveys have focused on formal savings products, while other studies have shown relatively high proportions of financially excluded people actually do save through informal methods (Stanley & Bhattacharya, 2008; Kempson, 1998). An analysis of informal finance is vital in finding the determinants of FI. A significant portion of the financially excluded save through informal finance mechanisms that include accumulating savings and credit associations (ASCAs), rotating savings and credit associations (ROSCAs), credit dealers, unofficial lending and interment communities. The informal

mechanisms meet some diverse needs that include consumption smoothing, in addition to promoting savings discipline and playing an intermediary role. One of the reasons for informal financial mechanisms is the inter-personal relationships that develop, instead of relying on anonymous interactions between clients and formal institutions.

In a study to examine the theory that informal finance is influential in supporting informal operators to exploit opportunities existing in the informal economy, Aliber (2015:16) found the nature of employment influential. Another study by Stanley and Bhattacharya (2008) in the US, found that better education, more income and greater English proficiency reduced the likelihood of being financially excluded. Srinivas (2016a:6) outlines the following reasons for the sustenance of the informal financial market: it enables very small savings behaviour; no need for collateral; localises services; personalises services; specific borrowers are identified; close information networks; enables reciprocation of credit disbursal; transactions unregulated by the central bank; and encourages community participation.

Factors influencing FI include gender, distance, location, income, level of education, financial advice, and proof of residence. The lack of advice aimed at the larger population of adults hinders the development of targeted and coordinated services. There are a variety of problems related to individuals' financial exclusion. Around the globe today, people who are not able to access loans from the mainstream sources of credit are losing more from unscrupulous lenders. Financial exclusion makes people unable to manage financial risks and seasonal shocks. Financial exclusion may result in depression and mental health problems, while the individuals may be socially excluded as well. Meanwhile, those who do not store their money in bank accounts are vulnerable to loss or theft, as reported in the media now and again.

The barriers of high FI levels should be dealt with to achieve inclusive financial systems. At individual level, these may include low levels of income, psychological barriers, low literacy levels, home location, cultural barriers, and insufficient information. Governments implement different methods to address these challenges, and transformation has varied results and is generally long drawn-out. On the supply side, the constraints emanating from institutional inadequacies may end in the inability to offer convenient accessibility to a broader range of financial products.

Empirical studies on FI play the fundamental role of unveiling the theories that underpin the argument of this thesis. The purpose of a discussion on empirical work that includes social media, internet access and financial advice is to gain an understanding of the existing research and debates relevant to factors influencing FI. The current study sought to investigate the determinants of FI in selected African countries. The study contributes to the body of literature by including the following explanatory variables: social media, internet access and financial advice. The section below discusses empirical work that included these explanatory variables.

The implementation of the Trans-theoretical Model (TTM) to financial behaviour began in the last twenty years. Kerkman (1998) focused on using TTM in financial counselling and brought to the fore a case demonstrating her strategy. Bristow (1997) postulated that the strategy might be employed in shifting individuals' financial behaviour in Money 2000[1], which is an example of an effective monetary schooling initiative that was accepted by 29 states and resulted in an impact of about USD20 million (O'Neill, 2001). The results revealed that amongst the 1998 programme beneficiaries in New York and New Jersey, certain stages of change were used more regularly (O'Neill 2001).

Some scholars used TTM in loan counselling situations to create a method of measuring to assist consumers in transforming behaviours that eradicate unnecessary credit card outstanding amounts (Xiao, Newman *et al.*, 2004; Xiao *et al.*, 2004). TTM was used in low-income consumers' monetary schooling initiatives and there are some educational strategies that fall under the TTM framework that were established (Shockey & Seiling, 2004). In addition, TTM was applied in the provision of advice to females to enable them to become informed savers (Loibl & Hira, 2007).

According to Montmarquette and Vietnnot-Briot (2012:12), investors who received financial advice amassed more financial assets than those who did not receive advice, regardless of their income and age. The study focused on an econometric framework on the significance of a monetary counsellor. The authors also pointed out that the advised investors began to consider advice when they had relatively little financial assets (IFIC, 2011). Those advised viewed their investment knowledge as more

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[1] a USDA Cooperative Extension project.

improved (Pollara, 2011). The advised displayed behaviours that left them in a better retirement position, and the advised people exhibited more confidence and peace of mind on financial matters (IFIC, 2010; Ray, 2010).

A study by Sherraden (2010) maintained that financial capability comprises the capacity to take action (awareness, motivation, resilience and skills) and the prospect of acting (through obtaining of financial products). The study found that those who required financial information that kept them out of the formal financial system at any level needed both monetary schooling and FI. One of the objectives of the research was to illustrate how financial knowledge, skills and FI are associated. Therefore, the study concluded by calling for more research on monetary understanding and guidance.

Contrarily, some studies reveal a restricted or adverse outcome as a result of financial education or advice among some communities. For instance, Mandell (2008), in a study of high school scholars that spanned over 10 years, found no significant link between financial knowledge scores and financial training in schools. Using a separate sample, Mandell and Klein (2009) also found no proof of a desirable behaviour change in the first five years after high school. A study by Braucher (2001) found that individuals who attended debtor-training sessions were less likely to pay back their loans than those who did not, even though the link is not essentially causal.

According to Hathaway and Khatiwada (2008) and Hogarth (2006), the impact of financial training is problematic to quantity because of the scope of audiences, purposes, timing and deeds. To this end, several questions are unclear pertaining to the stage in which to initiate financial training, the material to be taught, appropriate training approaches and how the factors could influence different target populations (Burhouse *et al.*, 2004). The ability to apply new information in monetary matters might come in stages but the timing remains unclear (Xiao *et al.*, 2004). The influence of monetary counsel on the poor and the financially excluded, in particular, are seriously unexplored (Schuchardt *et al.*, 2009; Hathaway & Khatiwada, 2008; Lyons *et al.*, 2006).

The existing work on financial advice has three demerits. There is no focus on the influence of financial advice on FI. Secondly, the majority of the research studies apply the case study and pre-post test approaches using little and indicative samples

(Holden *et al.*, 2009; Lyons *et al.*, 2006). Thirdly, some studies include comparison clusters, while a limited number uses control batches (Collins & O'Rourke, 2009; Martin, 2007). The contribution or impact of financial advice to FI levels is not yet clear, and this requires more research. In addition, more thorough and well-designed studies that comprise effect valuation are necessary (McCormick, 2008; Lyons *et al.*, 2006; Fox *et al.*, 2005).

A theoretical and empirical study by Chen *et al.* (2018) examined the association between internet use and accessibility of outside sources of funds for firms. A theoretical model was developed to explore the influence of internet access to loan facilities for firms. The study finds that the Internet can successfully reduce the financing challenges of firms by decreasing information asymmetry and agency costs. The study also finds that the Internet can boost sustainable development and social welfare aspects. Chen *et al.* (2018) used Chinese family economics data from the China Household Finance Survey. The results revealed or confirmed a positive link between internet access and access to financial facilities. In addition, it was found that the Internet can lessen the borrowers' dependence on physical bank outlets when making important financial decisions.

In a study done in Mexico, Bruhn and Love (2014) acknowledged that internet access eases information asymmetry between banks and prospective borrowers. Bruhn and Love also found that access to finance has an influence on earning levels and employment market. Based on data from Mexico, Bruhn and Love showed that the effect was significant in poor people and those regions with low bank penetration. The study also revealed that FI was among the major macroeconomic causes of entrepreneurialism in 18 European Union nations. The aim of the research was to find the effect of FI on the real economic activity. One of the questions was whether internet access can have an influence on the real economy. The study explored the association between internet access and finance access together with its economic structures and economic effects hypothetically. Nevertheless, the study has the following weaknesses: 1) Experiment was done in a more advanced economy than any African country, Mexico and the other conclusions being based on China and 18 EU countries; and 2) The dependent variable was limited, as the scope could be broader.

Lenka and Barik (2018) investigated the contribution of online network applications to FI in the South Asian Association for Regional Cooperation (SAARC) nations, between

2004 and 2014. Principal component exploration was applied to create an FI index that was used as a proxy for the availability of monetary facilities in SAARC nations. Having used the fixed effect, panel correction standard errors and random effect models, the results showed a positive and significant link amongst mobile phone use, FI and internet services. Lenka and Barik also found a progressive link amongst spread of internet services, increase in cell phone use, and improvement of FI in the region.

In a study by Nowak *et al.* (2008), to reduce funding challenges, small firm credit facility explanations could be employed as an instrument to hint at the prospective beneficiary's merit. The tool may forecast that the credit would be financed and the investor could make venture resolutions centred on appropriate and important indications given by the small firms.

Based on data from the UK, Cosh *et al.* (2009) studied the determinants of disavowal rates for financing from diverse investors, including individuals. The study showed that small firms were likely to acquire funds from private individuals. Following the increase in virtual finance, individual borrowers or small organisations can acquire external funds from virtual funding marketplaces. The capability of virtual marketplaces to proficiently and successfully connect borrowers and lenders (sellers and buyers) has shifted the models of business processes. It has also changed the role of a traditional intermediary.

In light of these developments, it is worth noting that peer-to-peer and crowd-funding lending are on the rise around the globe. Therefore, the role of the Internet in improving FI is yet to be exhausted, and there exists a gap in the literature. Prior studies focused on business entities and only a few studies have considered the effect of internet access on FI at personal level. There is a need to find the effect of internet access to FI in most African countries, as this may provide insight into the status quo and probable trade and industry instruments of digital or virtual money and the prospective relationships between the Internet and the use of formal financial services.

The existing studies on internet access have a number of weaknesses. Their focus was limited to one country making no provisions for cross-country analysis. The dependent variables were limited yet the scope was broader. Limited factors were

used and the studies could have included the effects of social media and financial advice.

To obtain significant insight into the determinants of FI, there is need to understand models and forms of saving that enhance inclusive formal financial systems. This is in line with the Harrod-Domar Model that can also be used to show not only the rate at which the economy must grow if it is to make full use of the capacity created by new investment, but inversely, the required savings and capital-output ratios if income is to attain a certain target growth rate.

The models and forms of saving discussed below will assist in viewing the systems from multiple perspectives. This will also assist in discovering the causes and effects of FI, using model traceability. In the formulation of policies, errors may be discovered earlier and system defects may be reduced. Discussed below are the models and forms of saving.

3.5.1 Empirical work that included social networks

Many studies have concentrated on the user experience, opinion and temperament when applying them to indicate the behavioural, psychological and essential characteristics of social media users. Some studies have employed the Technology Acceptance Model (TAM) to investigate the supposed essence of internet community networks. For instance, Hsu and Lin (2008) researched on the role of the TAM in consumer's intention and attitude to blogging. Hossain and De Silva (2009) applied the TAM with a special focus on the use of internet communities within the control of societal links. Steyn *et al.* (2010) researched the TAM with respect to social network announcements entrenched in the image management circles to appreciate blog users' objectives in terms of utilising the essentials of the statements. Casaló *et al.* (2011) applied the TAM to study the consumer's intent to track counsel.

Porter and Donthu (2008) studied the influence of consumers' views of the exertions anticipated by the sponsoring firms of an online community to cultivate assurance and harvest value. Freberg *et al.* (2011) examined the significance of perceived social media users' personality to public relations in affecting the customer's attitude to a brand. A study by Fischer and Reuber (2011) investigated the manner in which connections on Twitter influenced the effectuation procedures of an industrialist. The study also noted the perceived time that an entrepreneur spent on social media via

Twitter. Using a theoretical model, Parra-López *et al.* (2011) considered the effects of perceived gains on the intent to use a virtual network to plan and embark on vacation expeditions from a shopper's viewpoint. Kang *et al.* (2007) examined the supposed value to the community of understanding social interactions in a virtual community.

To appreciate users' intention to pay, Lu and Hsiao (2010) applied supposed cost in relation to price/value for money, social value, emotional value, as well as enactment/standard. Using the Existence, Relatedness and Growth Philosophy, Hau and Kim (2011) examined the extrinsic as well as the intrinsic benefits of knowledge sharing on social media. Using the Social Network Theory, Hsiao *et al.* (2010) assessed how the perceived goodwill/reliability, capability and critical mass of a web page were associated with the objective of acquiring goods through that platform. Chang and Zhu (2011) used the Theory of Planned Behaviour (TPB) to examine the influence of supposed behavioural management on plans to pre-accept and post-accept a virtual network.

In a study to examine the behaviour of Twitter patrons by using the usages and gratification methodology, Chen (2010) established that the greater the amount of time that one spent on Twitter, the greater the gratification and desire to connect with others. Nambisan and Watt (2010) assessed the experience of social media consumers in terms of sociability, pragmaticity, usability and hedonicity to understand their approach toward company, product and service quality. In a study on users' attitude towards social media promotion, Akar and Topcu (2011) suggested that the social media experience was positively correlated to social media advertising.

In research on the intersection of social media use and a user's personality, Correa *et al.* (2010) found that openness and extraversion to experience had a positive effect on virtual network use. Zhong *et al.* (2011) examined the relationship between usage of virtual network and the personality traits of cognition need and ICT innovativeness. The study found that less thoughtful actions resulted in more application of the virtual network. Huang, Chou and Lin (2010) investigated blogger's individual factors in terms of their involvement related to brand attitude and advertisement effect.

Karakaya and Barnes (2010) examined the influence of patron care practice on company or brand choice in relation to virtual evaluations. The study found a robust association between virtual customer view and selection through social sites. De Valck

et al. (2009) studied consumer traits in online networks to appreciate their pre- and post-buying assessment and information exploration.

According to Kohli and Jaworski (1990), market orientation is the application of selling ideas such as product price, service feature and information value through social media platforms to consumer behaviour appreciation. Using switching effort, contractual costs and continuity costs, Mathwick (2002) examined virtual customers' loyalty intention, entertainment value, intrinsic enjoyment and escapism. Using a longitudinal methodology, Chen, Fay and Wang (2011) examined the impact of product charge and feature with respect to consumer virtual evaluation posting behaviour. The study found that marketing variables had either a negative or positive impact on virtual posting behaviour at different periods of internet usage that affected customers' brand and product choice. Hsiao *et al.* (2010) examined the influence of system efficiency and details value based on perceived performance, expectation and disconfirmation with respect to the satisfaction of blog-users.

In a study to explore the status of banking institutions on virtual networks in Bosnia and Herzegovina, Mabic, Gaspar and Lucovic (2017) used a sample of 24 banks. The study found that 50% of banks had description/pages on various virtual networks such as YouTube and Facebook. The banks used the profiles/pages mostly for content marketing involving business operations presentations. There was no 'message' or encouragement by banks for bank-client interaction. However, this study focused on an analysis of the social media use, and not the contribution of social media to FI. Although the study pointed out that there was ample room for improvement in banks-client interactions, there is need to explore the contribution of social media to FI levels.

A study by Mucan and Ozelturkay (2014) focused on investigating how Turkish banking institutions used virtual networks, such as YouTube, Facebook, Blogs, Twitter and others, in trying to develop a competitive advantage in Turkey. They used coding schema to analyse their usage types. The study reported statistical results for the use of different social media by Turkish banks. The study pointed out that although a social media tool was vital in the current e-environment, there was no effort by banks to improve the uptake of financial services through social networks. The research did not explore how social media influenced FI levels in Turkey. Moreover, the study was narrow focused as it was based on Turkey only. There is still a research gap to find

out the contribution of social media links (Facebook Twitter, Zoom, LinkedIn and so on) to the FI levels in developing countries.

The extant literature shows the attributes used in earlier researches on social media to be varied and various. The causal-sequence structure reveals that the bulk of existing studies focused on the causal association that converts the users' personal values and beliefs into individual desires toward social networks. The focus on personal perspectives shows a research gap in the research related to the adoption of social media relevant to an organisational setting. Although various features of social factors have been used in the existing research models, little or no investigation of the effects of social networks on FI levels has been done. In addition, assuming that the virtual networks that are utilised transcend borders, few studies determining the outcome of virtual network implementation and the application to the financial sector development of FI exist.

However, the discussed literature on social networks did not focus on the application of financial services. The studies were also narrowly focused, analysing social media aspects in a single country or sector. None of the studies focused on social networks as a determinant of FI levels. Though there was no investigation of social network's contribution to FI, the studies revealed that the tools boost trade and industry growth.

From the existing literature, it is evident that researchers concentrated on individual traits and paid less consideration to financial organisational features. Only marketing and customer centricity were included in discussions related to adopting social media in business circumstances. Social networks are viewed as useful in connecting and assisting firms to improve their customer retention, brand equity and other business matters (He, Zha & Li, 2013; Laroche *et al.*, 2013; Hanna *et al.*, 2011; Kaplan & Haenlein, 2010).

Despite its attributes, social media is neither extensively used by financial firms in their everyday tasks nor used as strategic tools for customer relationship management (Mabic *et al.*, 2017:68; American Bankers Association, 2017:21). Concerning social networks, some pertinent questions have to be answered. Why do many financial institutions, particularly in Africa, not embrace virtual network in their daily commercial operations? What is the contribution of social networks to FI in selected African countries? These questions are inadequately addressed in existing studies.

3.6   MODELS AND FORMS OF SAVING

To allow for appropriate FI policy design and implementation, there is need to analyse models that can be used to explain saving motivations. Motivations, forms and theories of saving will guide the study on how social media, internet access and financial advice, among other determinants, are used to achieve FI goals. The motivations for saving include precautionary, down payment, life cycle (to make up for foreseen essentials), improvement (to delight in increasing expenditure), intertemporal substitution (to enjoy interest), bequest, avarice, independence, enterprise (Browning & Lusardi, 1996).

There are major economic theories of savings, as well as the empirical evidence related to these theories. Data and other studies provide descriptions or analysis of the savers and the degree of saving rates' movements over a period, but there is no exclusive model that clarifies why individuals save (Rosenzweig, 2001; Armendáriz & Morduch, 2010). It remains imperative to concentrate on the main driving and classic strategies then analyse (critique) them in relation to evidence from developing countries. The Life-Cycle Hypothesis (LCH) and Model of Precautionary Savings are discussed below.

3.6.1   The Life-Cycle Hypothesis (LCH)

The Life-Cycle Hypothesis (LCH) remains a prominent theory of savings. The LCH structure expresses the association of wealth, expenditure, savings and income in the life of an individual (Modigliani, 1970; Ando & Modigliani, 1963). The central view is that families possess a limited life and a long-term vision of consumption and revenue requirements. The other insight is that the household unit increases its earnings during the member's productive phase to smoothen expenditure during retirement. Sources of earnings include the accumulation of savings (permanent minus transitory income) or from legacies.

The LCH is among the early theories coined to enlighten savings patterns, and is backed by several empirical studies done in developed countries. However, the LCH has the following weakness: the model does not apply to poor communities, particularly in the developing world, for example, those families that live on farms in many developing countries and live from hand to mouth because of the low wages. The cycle can go on from generation to generation. The model is silent about the

determinants of savings but assumes that every family will save with access to an array of tools. It is wrong to assume that a family has access to formal and safe investments, as some may settle for informal and unsustainable investment tools.

Deaton (1997), who maintains that the model requires alteration to apply to the multi-generational households usually found in developing countries, put one critique of the LCH forward. Deaton argues that in a situation where a family component has extended family members, the rate of saving over the individual's lifespan is reduced as intergenerational transferences substitute the requirement for borrowing and saving over the individual's generation. An example is that of the AIDS epidemic that led to the premature deaths of income-earning generations, bringing the vision for intergenerational household transfer of wealth to nought. What saving models then apply to the selected African countries?

3.6.2   Precautionary savings models

According to Deaton (1997), precautionary savings models for poor households are a better fit. These models encompass the element that the volatility of income and inability to borrow for many households can be as harmful as the determinedly low level of expenditure. Rutherford (2000) lays a modest forecast that emanates from the majority of savings theories generating an inclination for smooth expenditure: the low income require mechanisms for small saving amounts and huge drawings to be possible. The notion is that people with a low income can save to achieve their life cycle requirements, deal with the unexpected, develop businesses, and obtain wealth. In contrast to these views on poor people, Barr *et al.* (2008) argue that the poor are just like everyone else, as they sometimes make good decisions and at times make rushed or uninformed decisions. The questions that need to be answered are: How can people save when they have no accounts with formal institutions? What determines FI in selected African countries?

As Rutherford (2000) argues, what people need is a secure, suitable custody for money, coupled with a mechanism to accumulate small amounts, transforming them into significant sums. Rutherford states that some home-grown mechanisms include Rotating Savings and Credit Associations (ROSCAs) and saving's gatherers that charge a fee for taking their savings. In contradiction to Rutherford's view, ROSCAs are not a safe mechanism for savers (Wright & Mutesasira, 2001) and the savings are

not in the formal system. In a study using Microsave data, Wright and Mutesasira (2001) found that individuals who had access to formal financial services had superior savings to those deprived of it. The study also found that those from official processes (15%) reported lower losses than those in the semi-official (26%) and unofficial (99%, although lightly defined) regions. An appropriate model to enhance the take up and proper usage of formal financial services must ascertain the optimal arrangements of all the facets by establishing the factors influencing clients.

An effective model takes cognisance of choice matters and provides guidance on how services and procedures can be structured to help the low income and financially excluded individuals to achieve their objectives. Properly designed obligatory savings accounts can prevent unnecessary expenditure and provide savings for the future, for example, investments, assets or retirement (Ashraf *et al.*, 2006). For example, modifying the 'default' settings is one way a product can be designed to nudge individuals towards preferred decisions, and a good example is that of a stop order. For a better understanding of product design to enhance FI, firstly, the psychology of the decision-making at individual, household and societal level must be understood. Factors, constraints and characteristics of individuals must be clearly investigated for effective decisions and policies to be achieved.

Therefore, savings remain imperative to both the poor and rich households, as individuals are prepared to make payment for the services rendered. The promise to make periodical savings has resulted in some experts arguing that those contributions are more important than loans in the promotion of FI programmes, especially for the very poor (Karian & Morduch, 2009). While this view may be true for some households, it does not apply to others. Collins *et al.* (2009) argue that in some circumstances the deprived are unable to save, regardless of the clear advantages for them to do so.

A related finding is of entrepreneurs in India who borrow persistently and routinely for working capital, which is extremely expensive. An example is that of vegetable vendors in that country who borrow small amounts each day to repay after their daily sales. The findings suggest that savings or FI promotion need a sophisticated strategy (models) that involves better research to understand the factors influencing decision-making. Both saving and credit approaches are important in the promotion of FI programmes. If the poor are the major users of the informal financial system, what

attracts them in that sector? To be able to design policies to bring them into the formal system, there is need to understand the dynamics in the informal credit sector.

For proper FI policies to be crafted, implemented and evaluated, it is crucial to analyse the models that are used to explain saving motivations. Motivations for saving include precautionary, down payment, life cycle, improvement, intertemporal substitution, bequest, avarice, independence and enterprise. The Life-Cycle Theory (LCT) remains a prominent model of savings. However, it is argued that the model requires alteration to apply to the multi-generational households usually found in developing countries. What people need is a secure, appropriate custodian to preserve their funds. Proper savings products are necessary to enable the disciplined build-up of small amounts and transforming them into great investments. An effective model takes cognisance of choice matters and guides on how products and methods of delivery can be structured to support the marginalised and financially excluded to allow them to achieve their objectives. Therefore, savings remain imperative to the poor and rich households as persons are keen to pay for the service. Credit remains equally important, as it plays a pivotal part in capital allocation.

The models that could be relevant for this discussion include associations, village banking models, bank sureties, communal finance, small business, credit unions, the Grameen, cluster, peer pressure, person, mediators, NGOs and ROSCAs (Srinivas, 2016b). The models are interwoven and the different organisations have characteristics of two or more models in their operations. The informal financial system exists today due to the occurrence of low-income households/individuals with no access to formal banks.

However, the informal financial sector models have several weaknesses. Repayment rates are high and there is a wide spread between the savings and loan interest rates, whereas commercial banks apply reasonable lending rates. There is generally poor record keeping in the informal financial sector, as there may be no trace of the saving and borrowing transactions of its clientele. The availability and size of loanable funds could be influenced by seasonal fluctuations. Seasonal lending is common in the sector as the supply of loanable funds is limited. In addition, informal group members are unaware of the latest financial products on the market and the adoption of new technology is slow. The new methods would permit them to elevate their earnings,

diversify risk and raise their quality of life. Many of these informal transactions have a high-risk premium and do not contribute anything to the fiscus.

The literature has not adequately covered several areas. This includes how FI is boosted by harnessing the public in the informal monetary system to the formal system. In addition, the use of modern communication technology to efficiently reach and serve those in the informal sector. The effect of social media on taking advantage of informal savings and credit groups that exist. The effect of internet access on FI status. How financial advice can enhance FI to the financially excluded and the marginally included.

To be able to design policies, there is need to discuss the dynamics in the informal financial sector. This can be done by analysing different savings and/or credit models being used in informal financial systems across the globe. Informal credit models include associations, village banking models, bank sureties, communal banking, small business, cooperatives, credit unions, the Grameen, cluster, peer pressure, solo, mediators, NGOs and ROSCAs. The security of loans in these models is moral collateral, that is, the commitment that the cluster stands behind each individual loan. The major issue with the unofficial monetary system is that it is not monitored by the central bank and high risk is inherent in every contract or transaction done in the sector. How can the informal savings and credit groups be accommodated to the formal financial system using modern communication technologies? Is there a way to utilise social networks to harness the financially excluded or those associated with the informal financial system? Does internet access have an effect on FI at individual level? To what degree can financial advice through social networks increase the level of financial inclusivity in selected African nations? There is a gap in literature that needs to be filled for FI levels to be improved.

3.7   CONCLUSION

There is broad empirical evidence suggesting a substantial and robust association between financial deepness and economic expansion. There is large material of empirical work assessing the link amongst financial sector development, economic expansion and the extent of the impact. Also assessed is the role of certain players of the financial sector that include banking institutions and stock marketplaces in stimulating growth in various stages of economic expansion. There has also been

empirical work on the degree of the direct impact of the financial industry evolution to the impoverished. In addition, a body of literature explores the degree to which trade and industry expansion results in penury mitigation.

As FI is increasingly becoming important for several countries across the world, studies have been evaluating its determinants, measurements and effects. There is need to understand the factors influencing FI in an area, be it at district, regional or country level. The reason being that in formulating and implementing a policy, there has to be adequate information for an informed decision to be made. FI or the access to a formal financial organisation is determined by several factors.

The Harrod-Domar Models, among others, provide a significant structure for elucidating the connection between FI and financial system expansion. Fundamentally, the Harrod-Domar Model is not limited to showing how FI (savings) leads to greater trade and industry expansion but also how financial industry evolution makes it likely for nations to create resources for investment purposes. The Harrod-Domar framework shows the importance of savings and investment in a developing economy. However, it does not explain how the FI levels (savings levels/rates) can be enhanced in developing countries.

Several philosophies and models have been applied in the existing social platform studies to research on the socio-psychological behaviour of consumers and other interested parties of social media. Literature reveals that financial advice influences among other things investments, savings, financial product selection and risk tolerance. Financial advice also enhances peace of mind, decision making and financial confidence. The extant literature implies a link between corruption and various facets of development. There is a gap in the existing studies on the contribution of financial advice, social media and internet related to FI. There is more to explore on these three variables, as the literature has suggested their potential contribution to FI levels.

The next chapter will discuss the nature of data and discuss how the study was conducted. It will give more detail on how the research questions were addressed and the main objective achieved.

CHAPTER 4:
RESEARCH METHODOLOGY

4.1 INTRODUCTION

The previous two chapters explored the philosophy and pragmatic indication related to key FI philosophies, the overall influence of FI, and the link between FI and the financial industry evolution. The current study investigated the determinants of FI in selected African countries with more emphasis directed towards social networks. This chapter provides the research techniques, foundation, design and overall research strategy applied in this study. The chapter further highlights the following: the research design, unit of analysis, operationalisation of the study variables, validity, reliability, data analysis techniques, diagnostic statistics and tests for control of common methods bias.

The aim of the current study was to gain an understanding of and to explain FI with the emphasis on the influence of social networks. To accomplish this, an empirical exploration was necessary to establish the theoretical hypothesised relationships. Specifically, the hypothesised links amongst Demographic (age, gender, marital status, proof of residence, branch access, location), Literacy (level of education, social media participation, financial advice, internet access) and Income factors (salaried/not salaried, level of income), and FI.

The current research is entrenched in the positivist methodological analysis, which emphasises clarifications and forecasts in the communal sphere by divulging underlying links between its variables or elements (Babbie, 2014; Scotland, 2012; Crotty, 1998). The positivism methodology is employed when a study seeks to measure, document and project the truth, using an assortment of constructs and variables. Positivists pre-suppose that realism in the societal world is tangible and can be known, premeditated and assessed by exact sciences methods (Babbie, 2014; Saunders, Lewis & Thornhill, 2012).

Furthermore, a researcher might select a quantitative research methodology when large data samples are available for analysis. Hence, the current study is structured in the objectivism ontological viewpoint that posits that a solitary certainty exist in the communal spheres, where human behaviour is examined 'from without', devoid of

obtaining the connotations that a person offers their quantifiable behaviour (Tuli, 2010; Sarantakos, 2005). In that regard, a large sample size and the use of a quantitative research methodology was applicable, in light of the objectivist ontological and positivist epistemology perspective. The approach enabled the investigation of factors influencing FI.

Section 4.2 presents summaries of the dependent and independent variables. Section 4.3 explains the main variables employed in the research. Section 4.4 explains the data sources, reliability, validity, and how the heteroskedasticity exists in cross-sectional data. This section also discusses how the endogeneity problem exists in the association between the regressand (FI) and the independent variables. Section 4.5 discusses multicollinearity between the independent variables. Unit 4.6 considers the endogeneity problem, while Section 4.7 presents the analysis of the missing values. Unit 4.8 discusses the Probit/Logit Models, and Section 4.9 discusses the Probit/Logit Models used in previous studies. Section 4.10 discusses the research design and approach employed in the study. Section 4.11 presents the general model specification of the FI function, and explains how data was analysed. Section 4.12 concludes the chapter.

4.2   SUMMARY OF VARIABLES

Table 4.1 below summarises the studies discussed in this chapter that used Probit/Logit Models in their FI studies. The table outlines the proxies used for the dependent variables.

The analysis will help to compare the methodologies that were used, and show the gaps that exist in the literature.

Table 4.1:   Summary of probit/logit models used in previous studies

Source	Regression models used	Proxies of dependent variables used	Comment on proxies
Laha and Kuri (2011)	Probit	If the respondent belongs to the formally included category: 1 Otherwise: 0	Limited scope with three proxies from three dimensions.
Sahoo *et al.* (2017)	Logit	Someone in the household has a bank account: 1 No-one in the family has an official financial facility: 0	Only three proxies were used and the scope could be broader.
Soumare *et al.* (2016)	Probit	Own a formal account: 1 Have saved: 1 Have borrowed: 1 At least three withdrawals from the account in the last 12 months: 1	Four proxies used from four dimensions. The scope could be broader.
Osei-Assibey (2009)	Probit	Single person in a household has a formal financial facility: 1 Otherwise: 0	A person cannot be financially included because someone in the household has an official financial facility.
Martinez *et al.* (2013)	Probit	One has an account with a bank: 1 Otherwise: 0	Single proxy used limiting the scope of FI. Limited dimensions.
Zins and Weill (2016)	Probit	If one has a facility with an official financial institution: 1 Otherwise: 0	Three proxies were used. The scope could be broader.

Source: Researcher's own compilation

Table 4.2 presents a summary of the independent variables that were used in the existing literature. The last column shows the excluded variables. The researcher outlined the variables that were excluded from the study to make the analysis of the literature gap easier.

Table 4.2:   Summary of independent variables

Source	Variables considered	Variables left out
Zins and Weill (2016)	Gender, age, income, education, age^2.	Marital status, physical access, location, social media, internet, proof of residence, financial advice, salary.
Seng and Lay (2018)	Phone, income, education, age, gender.	Age^2, social media, proof of residence, salary, internet, financial advice, location, marital status, physical access.
Sahoo *et al.* (2017)	Income, education, land, salary, location.	Marital status, age, age^2, social media, internet, proof of residence, financial advice, gender.
Laha and Kuri (2011)	Income, education, caste, religion, dependency ratio, land, proof of residence, social security, awareness.	Age, marital status, physical access, location, social media, internet, salary, age^2, gender.
Soumare *et al.* (2016)	Gender, education, age, age^2, income, location, salary, marital status, trust in financial firms, family size.	Marital status, social media, internet, proof of residence, financial advice.
Osei-Assibey (2009)	Liability, age of head of family, assets, gender, salary.	Age^2, marital status, physical access, location, education, internet, social media, proof of residence, financial advice.
Martinez *et al.* (2013)	Size of town, income, saving, salary, education, age, size of household, gender.	Age^2, marital status, location, internet, social media, proof, financial advice.

Source: Researcher's own compilation

4.3   MAIN VARIABLES APPLIED IN THE RESEARCH

This section discusses the different factors employed in the current study as enlightened by literature. The dependent variables of FI that include saving with bank, saving with other formal financial institutions, saving with mobile network, investing with bank, investing with other formal financial institutions, investing in unit trusts, investing in TBs, investing with insurance firm, and investing in shares are examined. This section discusses the factors influencing FI that have been investigated in previous empirical studies.

4.3.1 Factors incorporated in the research model

This section deliberates on the main variables employed in the present study as enlightened by literature. The justification for using each of the independent variables is explained. The 16 proxies that were applied for the dependent variable of FI are outlined under the four dimensions of FI that were adopted for this study. Existing studies have been limited on the use of FI proxies due to the lack of data, therefore, to close the gap the current study used 16 proxies.

4.3.1.1 Independent variables

The variables that were examined in this study are those that conform to extant scholarly work. The availability of Finscope data helped to estimate the determinants of FI. Below follows a brief account of all the factors incorporated in the models, as well as the motives for using them (see Appendix G).

Proof of residence

Any person wishing to access official financial organisations' facilities is required to submit a number of documents, which include identity documents and address validation (World Bank, 2018). The proof of residence requirements have played varying roles in influencing FI, particularly in developing countries with no formal documentation for rented accommodation. People from the rural areas may also face similar harrowing experiences, as formal proof of residence is hard to come by. In the UK, lack of proof of address is a huge obstacle in opening a current account that enables employers to pay salaries (European Commission, 2008).

The vital documents have to be original and authentic. The commonly used documents are as follows: water bills, electricity bills, lease contracts, council rent cards and mortgage reports. These documents are regarded as credible documents in many countries (World Bank, 2018). For the current study, proof of residence was incorporated as an indicator variable for people possessing the necessary official papers.

Salary

The type of job also determines the likelihood of an individual accessing official financial facilities or not. There is a greater chance of someone who is formally employed to be using official financial facilities (Clamara *et al.*, 2014). There are low

chances for a household with nobody with a formal employment to be financially included. In some developed countries, it is more probable for those without a job or in informal jobs to be out of the official financial system than those formally employed (CGAP, 2013; Carbo-Valverde & Rodriguez-Fernandez, 2014). However, Olit's 2011:91) study revealed that in Spain's rural areas FI did not appear to be influenced by the nature of employment. The current study considered salary as a dummy variable for people formally employed.

Educational level

The higher the level of schooling, the more likely the person is to financially included (Lewis *et al.*, 2016). Studies have shown that monetary exclusivity is predominant in commonly marginalised populations whose education standards are low. Such situations are characterised by numerous social exclusion problems. Studies have found that people who attained only primary education were less likely to have formal financial products in comparison with those who had tertiary education (Messy & Monticone, 2012).

The education level does not only influence whether the person has a formal account or not but also the mechanisms through which the services are accessed. An Australian research study found that in view of facility usage, schooling standard influenced FI. The current study considered the education variable as different categories of dummy variables according to the education level. The current study categorised the education level into four groups varying from Early Childhood Development to a Postgraduate degree.

Marital status

An individual's civil status is fundamental in determining the individual's FI status (Martinez *et al.*, 2013). A married person has a bigger chance of being financially included than someone who is single (Soumare *et al.*, 2016:247). In most cases, joint accounts will be in use enabling the partners to be financially included. Some researchers have revealed that a single person is not motivated to open an account as s/he literally lives from hand to mouth. In a study done in Columbia, Cano *et al.* (2013) maintained that marriage increased the possibility of an individual using official financial facilities. Cano *et al.* also revealed that married males had greater chances

of using official financial facilities. The current study considered marriage as an indicator variable for married persons.

Location

Location is a fundamental determinant of service provision that has an influence on financial availability. There are variances in the financial accessibility of individuals staying in urban areas and those in rural areas. Other studies have revealed differing impacts of geographic location of individuals related to formal financial services (Beck & Cull, 2015; Kedir, 2003). Some research done in the UK showed that FI is geographically concentrated because of an uneven supply of financial services and facilities (European Commission, 2008). The current study considered location as an indicator variable in the projected model centred on if an individual lives in the countryside or an urban area.

Gender

The accessibility of financial services varies according to gender. A study carried out in Mexico found that 42% of males used official savings, whilst about 30% females accessed the same. Other studies also showed that females had lower access to formal financial services (Allen *et al.*, 2012; Johnson & Nino-Zarazua, 2011). The need to build inclusive financial systems has prompted governments and other development partners to take initiatives to improve women's welfare. Therefore, policy interventions were initiated to promote FI among women (Samaniego & Tejerina, 2010; Trivelli, 2013). The current study considered gender as an indicator variable.

Age

Age is an important factor influencing FI status. Financial services' uptake and use can be affected by age, prompting suppliers to change approach or strategies to ensure that the various age categories are served. People are inclined to spend or use less depending on age, as illustrated in Modigliani's Life Process Model. According to Modigliani's model, individuals amass reserves in their economically active phase, with de-savings following in the later stages of life (Deaton, 2005). The implication is that FI level is greater in the economically active phase and exclusion rises or becomes greater in old age and among adolescents (Barnet & Solow, 2000:246).

A study done in Spain ascertained that the aged and adolescents displayed common characteristics in terms of FI trends. According to the Life Process framework, as age increases, there is a probability of a lack of concern regarding financial facilities, although only up to a particular phase. In a study done in West Africa, Soumare *et al.* (2016) ascertained that age was positively correlated with having an account with a bank. Consequently, it is vital to establish the pattern of the variable in selected African nations. In the current study, age was considered as a sequence of dummy variables subject to the individual's age, stretching from 18 to 85 years.

Age^2

Age-squared is also an important variable to consider in light of the non-linear effect of age. In the current study, a supposition was made that financial services' use rises with age and falls at some age threshold. Age^2 embraces the non-linear influence. A study by Soumare *et al.* (2016) indicated that the age-squared coefficient was negative, showing a threshold influence for the age factor.

Social networks

Social networks can offer a substantial upside in terms of customer engagement and feedback, and is utilised to strengthen relations with external and internal stakeholders. The existing social network theories explain the characteristics influencing user behaviour, ease of use of new technology, social influence and the intermediary functions of these communication platforms.

Many studies have focused on the consumer experience, insight and temperament, applying them to exhibit the behaviour, frame of mind and essential physiognomies of virtual network consumers. Other studies have used the TAM to investigate the supposed helpfulness of social networks. For instance, Hsu and Lin (2008) researched the role of TAM in consumers' intention and attitude to blog. Hossain and De Silva (2009) applied TAM, with a special focus on the use of online society platforms in the control of social links. Steyn *et al.* (2010) researched the TAM with respect to virtual social network announcements in image management circles to appreciate blog users' objectives for utilising the essentials of the statements. Casaló *et al.* (2011) applied the TAM to study consumers' intent to heed guidance. Nevertheless, no study has investigated the impact or result of social network on FI or FI development. For this current study, social network was included as a dummy variable.

Financial advice

A financial mentor not only teaches someone financial knowledge but also stimulates the person to make progressive monetary decisions to advance their personal gratification (Xiao *et al.*, 2004; Hilgert *et al.*, 2003). Therefore, positive monetary behaviours result in monetary gratification (Xiao *et al.*, 2006). Financial advice or educational programmes can achieve positive financial behaviour. Consumer finance researchers emphasise that there is need to understand how and why consumers change their financial behaviours to make significant positive financial behaviours.

Sherraden (2010) asserted that financial capability comprises of the capacity to decide (information, motivation, composure and skills) and the expectation to act (having accessibility to banking services and other facilities). Sherraden's research established that a lack of monetary knowledge keeps people out of the official monetary structure, and that at any level people need both financial knowledge and skills to be financially included. Some studies reveal that some people experience restricted or adverse outcomes from financial training or advice.

In a study involving high school pupils that ran over a decade, Mandell (2008) established no weighty link between the financial literacy scores and monetary training programmes in schools. Using a separate sample, Mandell found no resulting positive action in the initial five years after secondary school (Mandell & Klein, 2009). In a research to ascertain the influence of debtor schooling on loan repayments, Braucher (2001) established that the participants in the debtor programme were less likely to pay back loans than non-participants were. Although this was the result, the association was not essentially causal. Financial advice was a dummy variable for the current study.

Income level

An individual's income can influence FI in any economy. It is vital to examine the relationship between FI and total income from all sources personally received by an individual in the last 12 months. In a study done in Mexico, Martinez *et al.* (2013) state that 62% of the financially excluded in that country are poor. Numerous studies show a direct link between FI and higher income (Cano *et al.*, 2013; Allen *et al.*, 2012; Kedir, 2003). The current study considered income from all sources personally received in the last 12 months.

Branch access

Having access to financial services or a bank branch may influence an individual's FI status. High levels of FI may be realised in many developing countries if consumers can gain access to formal financial organisations (Brevoort & Wolken, 2008:21). Financial facilities that have infrastructure that is not accessible to persons with physical accessibilities can be a barrier to an inclusive monetary system. Studies have also shown evidence that the bank branch network is lowest in low-income communities. Distance or physical accessibility is one factor that has a great influence on the decision to open an account (Brevoort & Wolken, 2008). The more time it takes, or the longer the journey to the banking outlet, the lower the probability of FI.

This remains an important aspect, as digital banking is still in its infancy in numerous developing countries. This is a necessary factor affecting FI, and for the current study, physical access was measured in terms of the time taken to get to the next branch or formal financial institution.

Internet access

Is internet use an important influence of FI? The increase in the use of internet banking and credit cards has reduced the need for branches in the country, prompting a rise in FI levels. The distance from financial services suppliers is rapidly losing its significance with the advent of online services channels (Brevoort & Wolken, 2008:1), but it is still a significant factor of service delivery in Africa.

A study done in the metropolitan areas in the US revealed that technology was the most important determinant of FI. This study by Karp and Nash-Stacey (2015) also discovered internet and computer access positively correlated to FI. A study done in South Asia by Lenka and Barik (2018) discovered a progressive correlation among the evolution of FI and the spreading out of internet services and mobile money. In this current study, the internet is an indicator variable, that is, whether an individual can access internet facilities or not.

Mobile phone

Mobile phones have brought changes to business processes. Financial service delivery has been revolutionised by these technological advancements, as shown in a number of studies (Seng & Lay, 2018; Ouma *et al.*, 2017; Ghosh & Vinod, 2016).

The influence comes from mobile phone users having access to banking facilities, financial information and other monetary products.

In a study done in Africa, Ouma *et al.* (2017) found that wireless finances positively influenced saving habits among poor households. In another study on Africa, Andrianaivo and Kpodar (2012) discovered that cell phones significantly impact the trade and industry development through FI. In India, the results in Ghosh's (2016) study show that mobile phones had a progressive and substantial influence on FI in that country. Kenya, among other African countries, has made progress in employing wireless telephones to access financial facilities (Johnson & Arnold, 2012; Jack *et al.*, 2010; Jack & Suri, 2009). The question that remains unanswered is the contribution made by the use of mobile phones to FI in selected African countries.

Religion

Religion plays an influential role in Muslim countries, and conventional banking products are not attractive (popular) in that part of the global community (Dai-Won, Jung-Suk & Hassan, 2018; Njanike, 2010). Contrary to this view, Shinadeh's (2018) study that investigated the impact of individual traits on FI in the MENAP (Middle East, North Africa, Afghanistan and Pakistan) region, found that religion was not an obstacle to having an account with a bank. Dai-Won *et al.* (2018) found that religion was an influential factor in determining the FI status of individuals in Muslim countries. This would have been an important factor to consider in the current study, but the questionnaires that were used in the study did not provide this information.

All the independent variables discussed above are summarised in Table 4.3 below. The definitions and expected links with the dependent variable are outlined in the table.

Table 4.3:   Summary of operationalisation and measurement of study variables

Variable	Definition	Source	Expected relationship with dependent variable FI
Age	Influence of age on FI.	Shihadeh (2018); Altunbas *et al.* (2010); Deaton (2005); Barnet & Solow (2000).	**+**
Age^2	Influence of age^2 on FI.	Soumare *et al.* (2016).	**+/-**
Gender	Whether male or female.	Shihadeh (2018); Allen *et al.* (2012); Johnson & Nino-Zarazua (2011); De los Ríos & Trivelli (2011); Samaniego & Tejerina (2010); Altunbas *et al.* (2010).	**+/-**
Marital status	Whether married/not married.	Martinez *et al.* (2013); Cano *et al.* (2013).	**+/-**
Proof of residence	The possession of proper documents required to open a bank account.	World Bank (2019); King (2011); European Commission (2008).	**+**
Branch access	Distance from the next available formal financial institution.	Ghatak (2013); Altunbas *et al.* (2010).	**-**
Location	Whether in urban or rural areas.	European Commission (2008); Kedir (2003).	**+**
Level of education	Level of education measured from primary to tertiary.	Shihadeh (2018); Zins & Weill (2016); Lewis *et al.* (2016); Clamara *et al.* (2014); Ghatak (2013); Allen *et al.* (2012); King (2011).	**+**
Social network	Use of social network platforms such as Twitter, Facebook, and so on.	Casaló *et al.* (2011); Steyn *et al.* (2010); Sherraden (2010); Hossain & De Silva (2009); Hsu & Lin (2008).	**+**
Financial advice	The type of source of advice relevant to the use of formal financial services.	Mandell and Klein (2009); Mandell (2008); Xiao *et al.* (2006); Xiao *et al.* (2004); Hilgert *et al.* (2003); Braucher (2001).	**+**
Salaried/ not salaried	The nature of current occupation, whether formal or informal and the effect on FI.	Clamara *et al.* (2014).	**+**

Variable	Definition	Source	Expected relationship with dependent variable FI
Level of income	Aggregate income per annum.	Shihadeh (2018); Ghatak (2013); Altunbas *et al.* (2010).	**+**
Internet access	Accessibility to and usage of internet facilities.	Lenka & Barik (2018).	**+**
Phone	The use of a mobile phone.	Ouma *et al.* (2017); Ghosh (2016); Andrianaivo & Kpodar (2012).	**+**

Source: Researcher's own compilation

4.3.1.2   *Dependent variable*

The predictor variable of Financial Inclusion (FI) includes a number of proxies that reflect the comprehensive or wide range of the variable. Sixteen proxies were considered for the FI dependent variable. Contrary to previous studies that used only one proxy as dependent variable, the current study considered 16 proxies to factor in the four different dimensions (saving, investment, borrowing, bank penetration) reflecting the wider spectrum of FI. The reason of the use of the four dimensions is to avoid limitations to the scope of FI, such as, using merely 'having a bank account' or 'having no bank account', as used in other studies (see Martinez *et al.,* 2013; Njanike, 2018). This is also a contrast to the three-dimension index used from a suppliers' viewpoint (see Camara & Tuesta, 2014; Demirguc-Kunt & Klapper, 2012; Hannig & Jansen, 2010; Sarma, 2012).

This study used Finscope Surveys (see Appendix H) to explore the factors influencing an individual's choice in terms of being financially included in selected African countries. The use of the sixteen proxies to determine the individual's FI status, enabled the study to establish the factors influencing FI.

Whilst many studies have used country-level data to estimate FI levels in various countries, this study used demand data to investigate FI determinants, with the focus on social networks at the individual level. The four dimensions used, namely, saving, investment, borrowing and bank penetration are instrumental in identifying policy gaps, and gaining an understanding of both served and underserved populations, before

defining priorities for action. In this way it will be possible for policy-makers to develop targeted strategies to enhance inclusive financial systems.

To the best of the researcher's knowledge, no similar study using such rich data and proxies has been carried out. FI was used to measure an individual's FI status (1, 0) at individual level and to determine the factors influencing FI in each of the four countries, and in Africa as a whole. Table 4.4 below shows the summary of FI proxies.

Table 4.4: **Summary of financial inclusion proxies**

Dimension	Proxy
Saving	Saving with bank.
	Saving with other formal financial institutions.
Investment	Invest with bank.
	Invest with other formal financial institutions.
	Invest in unit trusts.
	Invest in Treasury Bills.
	Invest with insurance firms.
	Invest in shares.
Borrowing	Borrow from bank.
	Borrow from other formal financial institutions.
Bank penetration	Bank account.
	Has a fixed account.
	Has a call account.
	Has a forex account.
	Has a bank overdraft.
	Has a loan account with bank.

Source: Researcher's own compilation

4.4   DATA SOURCES

The current study is a quantitative research study that used Finscope Consumer Surveys data that was collected in four selected African countries. A quantitative study is a recognised, independent and systematic practice in which statistical data is applied to find information pertaining to the world (Kumar, 2005). The data used was

generated from questionnaires. Secondary data analysis was done using surveys conducted at different periods and the latest available data from these countries was used. The questionnaires consisted of a series of questions on FI, covering topics such as Management of Money, Financial literacy, Saving, Investment, Borrowing, and Bank penetration, among other issues (see Appendix F). Questionnaires used in these countries have the same standard.

Governments need evidence-based information to aid them in the development of strategies that create sustainable and inclusive growth and development. The formulation of these strategies requires facts on the financial systems and the degree of FI in a country. To attain this objective, FinMark Trust, in collaboration with different stakeholders, conducted surveys in several countries. Thousands of face-to-face interviews were conducted, and the samples were a countrywide representation of individuals. The respondents were aged 18 years and older. Finscope Surveys used an unsystematic choice of suitable participants from the respective families through the use of a Kish selection grid.

The data collected in seven African countries was used to measure FI, and to determine the factors influencing the different levels of FI in the relevant countries in the manner explained below. The findings then led to the development of policy frameworks for the selected African countries.

A purposive sampling technique was used to select the four African countries under study. Initially, there were 21 Finscope country data sets (see Appendix H) but some questionnaires left out important variables which resulted in them being dropped. The study was informed by the literature that the variables required included social networks, financial advice and internet, among others, in each questionnaire. Taking this into consideration, the following four countries' data sets were selected: Eswatini (2014), the DRC (2014), South Africa (2015) and Kenya (2016). The surveys provide the necessary statistics that permitted the researcher to assess the fundamentals of FI that have yet to be researched owing to the absence of suitable records at country and personal level. The investigations produced figures concerning the physiognomies and numbers of both formal and informal consumers of monetary facilities.

The use of secondary data to investigate the determinants of FI had the following advantages: it was inexpensive; allowed the researcher to cover a greater geographic range; it was not time consuming and involved the re-collection of readily available data; and the available Finscope Survey data was dedicated to improving FI quality across Africa. However, the study also encountered drawbacks, such as that surveys were done at different periods (years), and some surveys left out important variables (questions), for example, aspects of social networks. Another disadvantage is that data-collection methods may change over time. An assumption was made that all the surveys were similar regardless of the time taken and the latest survey available for every country sampled was used. Those surveys that left out pertinent variables in the study were dropped.

4.4.1   Reliability and validity

When using secondary data to make important economic decisions, it is necessary to substantiate the reliability and validity of the data (Biasutti & Frate, 2016; Saunders *et al.*, 2012). An evaluation process needs to be followed to ensure the accuracy and validity of any external secondary data. Factors such as the data collector, purpose, time, collection process, type and relation to other data should be considered when secondary data is in use (Dahl, 2008). Reliability is the extent an assessment tool can consistently measure what it is anticipated to quantify (Babbie, 2014).

Validity is the level where a quantifying instrument measures and performs that which it is designed to accomplish (Wilson, 2010). Therefore, reliability is closely related to validity but validity is more important than the former (Babbie, 2014). In other words, what is valid is also reliable.

Therefore, this study used Kenya's Finscope Survey 2015 data for validation. The questionnaire was the same as the questionnaire used in previous surveys.

4.4.2   Heteroskedasticity

One supposition of the classical rectilinear regression framework is that the difference of every statistical error e_i, depending on the selected value of the regressors, is a constant number identical to variance (σ^2) (Verbeek, 2004; Fox, 1997). This is true for an equal spread or homoskedasticity. Figuratively, E (e_i^2) =σ^2 (i=1, 2...n).

When this assumption is violated, to say variances of the error term are not the same, that is, $V(e_i) \neq \sigma^2$, the problem of heteroskedasticity arises (Greene, 2012; Cortina, 1993). Cross-sectional data is prone to the problem of heteroskedasticity. Heteroskedasticity arises as individuals' income improves, and people have more disposable income and more scope for choice on the use of their money. Therefore, σ_i^2 is probable to increase with inflows. Thus, in the model of FI on income, there is the probability of finding σ_i^2 rising with income, as more choices result in changing behaviour.

Heteroskedasticity emerges in the case of FI, as people become more educated, and they become more inclined to be more inclusive. In such cases, σ_i^2 is expected to decrease. The better the data collection techniques, the more likely σ_i^2 will decrease.

The presence of outliers also gives rise to heteroskedasticity. An outlier is an observation that is either very large or small relative to the observations in the sample. The exclusion or inclusion of such an observation can significantly alter the results of regression analyses. Omitted variables can also be a source of heteroskedasticity. Variables omitted may be more important at some stage.

As the problem of heteroskedasticity is prevalent in cross-sectional data, the researcher should typically deal with a sample population at a given time. The person may be a consumer, family, or geographical subdivisions, such as country, state, city and so on. The individuals may also be of different ages, income, location and different access to some services.

When building a linear regression model it is imperative to check for heteroskedasticity of residuals. The OLS (ordinary least squares) approximation enforces heteroskedasticity in the event of a dichotomous response variable. The purpose of checking is to see if the model has the capability of explaining some design in the regressand that appears in the residuals. This gives rise to an unbalanced and inefficient regression model that can result in a wrong/biased prediction.

The following are the most commonly used methods for detecting heteroskedasticity: Graphical Method, White's General Heteroskedasticity Test, Goldfled Quandt Test, Spearsman's Rank Correlation Method, and Park Test. The Breusch-Pagan Test and White Test were used to detect heteroskedasticity in the current study.

4.4.2.1 Breusch-Pagan Test

The Breusch-Pagan assessment checks the null hypothesis that the residuals' variances are not linked to a set of explanatory variables against the alternative hypothesis that the residuals' variances are a parametric function of the predictor variables (Breusch & Pagan, 1979). The idea is to regress the squared residuals from the original model on all of the independent variables and check for the general impact of the other regression. The test can be represented in an auxiliary regression form in which the squared residuals of the suggested models are regressed on the predictors that cause heteroskedasticity. If it is found that there is joint significance, the conclusion is that the explanatory variables have an effect on the variance of the error term. Therefore, there is heteroskedasticity.

The test was done on the five different regression models and data sets, which are 1) Combined, Eswatini, 2) Kenya, 3) the DRC, 4) South Africa, and 5) Eswatini (see Appendix C). In all five cases, the hypothesis tested was as follows:

$H_o :$ Constant variance

Considering the F statistic, if there is joint significance, the conclusion is that there is heteroskedasticity.

The tests done on all the data sets (models) showed joint significance of the second regression, showing the existence of heteroskedasticity (see Appendix C). The H_0 was rejected in all the cases, concluding that heteroskedasticity existed.

4.4.2.2 White Test

The White Test was used because it was referred to most frequently in applied papers, and the results were consistent with the Breusch-Pagan (1979) tests. The White (1980) Test computation is worked by regressing squared residual, e_i^2 , on the initial x's, their own product, and the multi-products. The White statistic is $W = NR^2$, where, R^2 is the coefficient of determination. If the inaccuracies are homoskedastic, W is spread as χ^2 with degrees of freedom equivalent to the amount of independent variables in the supplementary retrogression, not including the constant (White, 1980). The significant price of W results in the refusal of the null premise of homoskedasticity.

If a test has a p-value less than a significance level of 0.05, the H_0 is declined. The H_0 can be declined that the variance of the residuals is constant and deduce that heteroskedasticity is indeed there.

The tests were done on the five different models and data sets (see Appendix C). Considering the F-Statistic, H_0 was rejected, confirming the existence of heteroskedasticity.

4.4.2.3   Procedure used in the study

Since heteroskedasticity is a predominant challenge in cross-sectional data analysis, methods to rectify the problem of heteroskedasticity are required for prudent data examination. Although it is possible to come up with a correct standard error of OLS estimator, the formula is not dependent on the model for heteroskedasticity. The current study used heteroskedasticity consistent standard estimates, according to the recommendations made by Hayes and Cai (2007:711).

4.5   MULTICOLLINEARITY BETWEEN THE EXPLANATORY VARIABLES

Multicollinearity is a scenario where at least two predictor variables in a multivariate analysis are greatly interconnected (Sekaran & Bougie, 2010). Tests were done on the data to confirm the absence of multicollinearity within the hypothesised model. As the levels of multicollinearity increase, the more difficult it becomes to discover the definite result of the predictor variables on the regressand as the normal variation rises (Hair, Black, Babin & Anderson, 2010; Field, 2009).

The current study assessed multicollinearity using the variance inflation factor (VIF) and tolerance (1/VIF) value. The acceptable close-off value is a VIF of 10 and tolerance value of 0.10 (Hair *et al.*, 2010; Field, 2009). For all five models, that is, for Africa, Kenya, the DRC, South Africa (RSA) and Eswatini, the VIF and tolerance (1/VIF) values were within acceptable ranges, except for age and age-squared (see Appendix E). The results related to age and age-squared were expected, as the two variables are closely linked as shown by their correlation values that range from 0.96 to 0.77 (see Tables 5.2 to 5.6). This type of collinearity is known as structural multicollinearity that arises when a model term is created using other terms. Put differently, it is a by-product of the model specified and not within the data itself.

Another test was done with age-squared omitted; VIF and (1/VIF) fell in the acceptable ranges, including those of other variables in all five models.

Although multicollinearity may cause problems, it is not always necessary to correct it, particularly when it is structural in nature (El-Dereny & Rashwan, 2011). Moreover, according to Mason and Perreault (2016), multicollinearity should not be viewed in isolation but in conjunction with factors affecting the estimation accuracy. Therefore, the requirement to reduce multicollinearity also depends on the severity and primary goal for the regression model. Hence, in the current study, there was no remedy sought as the problem was not severe.

4.6   THE ENDOGENEITY PROBLEM

A situation where an explanatory variable is connected to the error term is referred to as an endogeneity problem. In a model, the endogeneity challenge arises when there is a link between the regressand and the error term (Cameron & Tinedi, 2005; Antonakis & Dietz, 2011:218). This means that the error term is due to all of the factors in the regressand that are not due to the variables in the model.

The bias is mainly triggered by the omission of relevant variables that explain the endogenous variable, measurement error and simultaneity of variables (Antonakis, Bendahan, Jacquart & Lalive, 2014; Hayduk, 1996). Additionally, endogeneity bias is likely to arise where the error terms causing the endogenous variable within a hypothesised regression model are correlated with each other. Endogeneity is said to occur in a multiple regression model if

$E(X_j u) \neq 0$, for some $j = 1, ..., k$.

In a case where a regression model excludes a key variable due to data unavailability, estimates become biased (inconsistent).

To investigate the existence of absent factors, a single test, named Ramsey's (1969) is available to assess if polynomial expressions are missing from a model Regression-Error-Specification Test (RESET). Nevertheless, the test does not control if other forms of absent factors exist, which implies that it is imperative to be guided by theory (Antonakis & Dietz, 2011: 218). Direct tests to identify omitted variable(s) do not exist, which might be a leading outcome or an interaction consequence too in a certain model.

Financial knowledge is a critical variable contributing to FI in developing countries (OECD, 2013). Financial literacy may influence education as there may be a need to understand the financial (investment) world better. FI is also correlated to the education variable. Some data sets used in this research provided this variable and the other sets omitted it.

The following is a FI equation recognising that financial literacy affects FI:

$$FI = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \alpha_2 media + \alpha_3 finliteracy + \alpha_4 internet + \alpha_5 phone + \Omega_1 sala + \Omega_2 Inc + e$$

In the case of a missing important variable, one remedy is to obtain a proxy variable that is correlated to the omitted variable (Wooldridge, 2002; Hayduk, 1996). Considering the results of omitting a variable and whether the particular variable must be incorporated or not in a model, it is always best to include an additional variable (Antonakis *et al.*, 2014; Cameron & Trivedi, 2005).

In the current study, instead of financial literacy (finliteracy), financial advice was used. In the absence of financial literacy, financial advice (Advice) ensures that one makes an informed decision. In the FI equation, financial advice was used as a proxy.

$$FI = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \alpha_2 media + \alpha_3 Advice + \alpha_4 internet + \alpha_5 phone + \Omega_1 sala + \Omega_2 Inc + e$$

The interdependence that exists in a model, as illustrated by the equations, complicates accuracy in deciding the extent to which the predictor variables influence the criterion variable of interest when another exogenous factor is simultaneously used. The potential existence of such an effect and overlap was addressed by refining the model. This was achieved through the inclusion of variables for the improvement of the consistency and accuracy of the estimated results (Bollen, Guilkey & Mroz, 1995; Villa-Boas & Winer, 1999; Timpone, 2003).

4.7   MISSING VALUE ANALYSIS

In surveys, misplaced figures and varying data are problematic to circumvent (Hair *et al.*, 2010). The errors can be attributed to the data-capturing phase or the respondents' unintended or intentional omission, or discordant material in the process of answering

a questionnaire (Sekaran & Bougie, 2010). Missing values are problematic because of their potential to negatively affect the sample size, and ultimately, statistical results.

The use of multivariate statistical tests can also be negatively affected by missing values (Hair *et al*., 2010). The test results may be affected by the reduction in sample size in case of missing values from the analysis techniques. To solve the missing data problem, the following methods can be used: weighting methods, likelihood-based methods and multiple imputation (Korczyński, 2018).

The researcher needs an understanding of the nature of the process leading to missing values when examining the incomplete data set. According to Jakobsen, Gluud, Wetterslev and Winke (2017:1), "there are three typical mechanisms causing missing data: Missing Completely At Random (MCAR); Missing At Random (MAR); and Missing Not At Random (MNAR)". The current study used the Multiple Imputation Technique to solve the challenge of missing values in the data.

Using the Multiple Imputation method (MI), the missing values are substituted with several values (Zmyślona, 2011). Each data set is then analysed by the Standard Complete-Data Method, producing m estimates. The estimates are then combined to make one inference. The uncertainty that arises has two different sources: variability that arises due to lack of sufficient knowledge about the actual reasons for non-response and the sampling variability.

Sampling variability is combined through the use of numerous imputations under one imputation result. Non-response variability is stated by using numerous imputation models. However, this method has a drawback due its complexity and sensitivity to the choice of imputation models. Furthermore, it is not clear if methods apply to discrete data (Carpenter, Kenward & Vansteelandt, 2006:12–13).

The Multiple Imputation method comprises of the following two major steps:

Step 1. Describe the imputation model. The two commonly referred to groups of imputation models in literature are the Regression Models and the Hot Deck Procedure Based models. In the Hot Deck method, observation units are separated into groups with diverse probabilities of "missingness", and the missing values are replaced by draws from the observed values made within homogenous groups (see Song & Shepperd, 2007).

Step 2. Examine the imputed data sets using a Standard Complete-Data Method (for example analysis of linear or variance regression). Let m stand for the number of imputations and each imputation produces an estimate S_d.

The combined estimate of θ is defined as the average over the $θ_d$ estimates:

$$\hat{θ} = \frac{1}{m}\sum_{d=1}^{m} θ_d \tag{1}$$

Assuming large samples, for a scalar parameter θ, the (1-α).100% interval estimate is (Altrichter, Kemmis, McTaggart & Zuber-Skerritt, 2002):

$$Θ ± t_α ; v \sqrt{T} , \tag{2}$$

where, t denotes the t distribution with v variable quantity given by:

$$v = (m\text{-}1)\left(1 + \frac{w}{(1+m^{-1})B}\right)^2 \tag{3}$$

The analysis in Appendix D shows all the datasets with fewer observations because of some covariates containing missing values. The DRC had missing: Branch access (239) and Income (191); Kenya had missing: Branch access (611) and Income (23); South Africa had missing: Branch access (45) and Income (64); and Eswatini had missing: Income (347).

The information in the analysis could be preserved by using Multiple Imputation (MI). Therefore, missing values were replaced using the MI method. The main reasons for the use of the MI method include the following: 1) It leads to statistically valid estimates under MAR assumption; and 2) It enables control of the imputation model and integrates the uncertainty on the imputed values. Furthermore, MI can be applied for general patterns of missing data allowing for sensitivity analysis under diverse imputation models, which is important when dealing with MNAR data. The method is relatively simple and easy to apply.

The current study used Single-Imputation methods as a missing data technique. The advantage of these methods is that there is no discarding of missing values. Methods such as the Listwise consider the imputed data as given in the study. This underestimates the discrepancy of the evaluation, thereby overstating accuracy and this results in significance tests and confidence intervals that are too positive. MI

resolves such a challenge by producing numerous imputations, and it regards the selection variability due to the omitted data (Little & Rubin, 2002; Altrichter *et al.*, 2002).

The current study used Stata that gives complete backing for MI scanning from imputation to the pooling stage. At the imputation stage, several analyses were made for each variable missing data of all the data sets (see Appendix 4C). The following are the steps that were followed using Stata:

- The datasets were MI set in the Marginal Long Style and the Memory Efficient Style. Frequency distribution and descriptive statistics showing minimum, maximum and means were shown on checking for missing data. It was found that the data was missing at random.

- The imputation variables were registered, that is, Branch access and Income for Kenya, RSA and the DRC datasets. Eswatini had Branch access only considered, as indicated above.

- All other variables used in the study were registered as regular.

- To reduce the simulation (Monte Carlo) error, 20 imputations were arbitrarily created. The option was also specified for reproducibility. Verification was done and all missing values for the four datasets were successfully imputed. There was also a quick check by examining the imputations to confirm if any irregular activity transpired in the course of the imputation process. Everything was normal.

- From the output, all incomplete values of Branch access and Income were successfully imputed for all datasets. To manage the data, missing values were replaced using the Linear Regression Method supported by Stata.

4.8   THE PROBIT/LOGIT MODEL

In Binary Regression Variable Models, the assumption is that the regressand is computable, whereas the independent variables are qualitative or quantitative (Wooldridge, 2013). Certain types of regression models have the response variable dichotomous in nature with a 1 or 0 value. The problem associated with such models is on inference or estimation. The common models that are used for estimations are the Linear Probability Model (LPM), Probit Regression and Logistic Regression. However, there are problems linked to the use of LPM that include:

i) Non- fulfilment of $0 \leq E(Y|X) \leq 1$.

ii) Heteroskedastic variances of the disturbances.

iii) The disturbances are not normally distributed.

iv) Value of R2 is an unreliable measure of goodness of fit.

v) The assumption that Pi = E(Y=1|X), that is, the incremental effect of X is constant throughout.

The Logit and Probit models largely solve some of these problems.

4.8.1　The Logit Model

Logit Regression investigation is a multivariate method that permits the probability approximations that an event occurs or not. The Logit predicts the binary dependent outcome from given independent variables. For example, in the current study of financial inclusion, whether one is financially included or not, the LPM depicted it as:

$$P_i = E(FI| x_1, x_2, \ldots, x_k) = \beta_1 + \beta_2 x_2 + \ldots + \beta_k x_k , \qquad [4]$$

where, x_k is the independent variable and FI= 1 means an individual is financially included.

The following representations of FI are then considered:

$$P_i = E(FI=1|x_i) = 1/[1+\exp-(\beta_1 + \beta_2 x_2 +.. + \beta_k x_k)] = 1/[1+\exp(-Z_i)] \qquad [5]$$

Where, $Z_i = \beta_1 + \beta_2 x_2 + \ldots + \beta_k x_k$

The probability of an individual being FI is given by (3). This equation is termed the (cumulative) Logistic Distribution Function. Z_i ranges from $-\infty$ to $+\infty$; P_i stretches from 0 to 1; P_i is non-linearly related to Z_i, thereby satisfying both conditions required for a probability model.

The Logit analysis gives statistically sound results by transforming a dichotomous regressand to a continuous variable stretching from $-\infty$ to $+\infty$, circumventing the out-of-range estimation problem. The analysis also produces results that are easily interpreted. The Logit Model produces estimates that are asymptotically consistent, standard and efficient, for the analogue of the regression t-test to be applicable.

4.8.2   The Probit Model

For the analysis of dichotomous dependent variable behaviour, it is necessary to utilise a suitable Cumulative Distribution Function (CDF). The Probit model uses a normal CDF, whereas the Logit employs the Cumulative Distribution Function of the logistic distribution (Wooldridge, 2013).

For the current study, for example, the result of a person using official financial facilities or not is hinged on unobservable utility Index, I_i, dictated by the predictor variables, in the way that the greater the value of index I_i, the more the chances of using official financial facilities.

The index, I_i can be expressed as:

$$I_i = \beta_1 + \beta_2\, x_2 + \ldots + \beta_k\, x_k\,, \qquad\qquad\qquad\qquad [6]$$

Where, x is the explanatory variable.

It is assumed that I_i is ordinarily dispersed with the same variance and mean. If this holds, estimations of parameters can be estimated to get information about the unobservable index itself.

In order to estimate β_1 to β_k, it can be expressed as:

$$I_i = \beta_1 + \beta_2\, x_2 + \ldots + \beta_k\, x_k + u_i \qquad\qquad\qquad\qquad [7]$$

As in the case of Logit Model, P_i is estimated as follows: $P_i = n_i / N_i$

To get efficient estimates, it will be necessary to transform the model then estimate:

$$I_i = \beta_1 + \beta_2 + \ldots + \beta_k\, x_k + u_i \text{ by OLS}. \qquad\qquad\qquad [8]$$

The key distinction between the Probit and Logit models is that the latter has somewhat flatter tails. The Probit and Logit models generate similar outcomes but the approximations of parameters of these models are incomparable.

4.8.3   Models used in previous studies

This section articulates the Logit/Probit regression models used in the limited number of empirical studies that are available (Laha & Kuri, 2011; Martinez *et al.*, 2013; Zins & Weill, 2016; Soumare *et al.*, 2016; Sahoo *et al.*, 2017).

Laha and Kuri (2011) investigated the underlying factors responsible for FI barriers in rural West Bengal, India. The sample used in the study covered three districts of India. The study used the Probit Regression Model for analysis to determine the factors influencing FI in India. However, this study used a small sample to represent the populous country of India, and the sampling is not convincingly representative of the whole country. Laha and Kuri used a narrow independent variable with four proxies of FI. More independent variables could have been included for better results.

Zins and Weill (2016) did research on the factors influencing FI in Africa, and used a sample of 37 countries. The study utilised the Global Findex data to perform probit estimations. The following three proxies for the dependent variable were used: (1) Has a formal account; (2) Has a saving account, and (3) Has formal credit. Although a sample of 37 countries is a better representation for the generalisation of the entire continent, the methodology lacked country-by-country analysis, which would have provided better insight for policy-makers. The scope of FI was limited to three factors, which are Savings, Borrowing and Services' availability, when it could have been broader.

Using a sample from six villages in two districts of India, Sahoo *et al.* (2017) investigated the determinants of FI of tribal households. A sample of 300 households was used and a Logit Regression Model was utilised for analysis. The study focused on two districts which were arguably not representative of the different cultures and the whole country. Three proxies were used for the dependent variable of FI when the scope could be broader.

Soumare *et al.* (2016) applied data from Global Findex to ascertain and analyse the determinants of FI in West and Central Africa. Dependent variables used were four proxies using a sample of 10 countries. The Probit Model was used to analyse the determinants of FI in the region. However, the study did not provide a country-specific analysis which is more important for crafting policies.

In a study done in Mexico, Martinez *et al.* (2013) used the Probit Models to estimate the factors influencing FI in that country. Whether the individual has an account or not, was used as a proxy for FI in that country, ignoring some dimensions of FI. However, the analysis was based on one country and the socioeconomic status of that country

is unique, such that the results cannot be generalised for countries in Africa, for example.

Osei-Assibey (2009) examined the factors driving geographic exclusion of banking services to households in rural Ghana. Whether one person in a household was using official financial facilities or not, was utilised as a proxy for FI. The application of such a proxy does not give a true reflection of an individual's status, for example, a person being financially included because of a brother/sister who has an account with a bank. The study used 10 explanatory variables.

The five studies on FI were narrow-focused on one or two dimensions, when in fact it is broader. Some studies used a sample as small as 300, and a portion of a country to represent the whole nation (see Sahoo *et al.*, 2017; Laha & Kuri, 2011). All the studies, except Soumare *et al.* (2016), focused on one country or a part of it.

4.9   RESEARCH DESIGN AND APPROACH

The study was divided into three themes with different research questions under each (see Section 1.2). The themes determined where and what kind of research the study would be looking for. The themes also led to the identification of the specific objectives of the study. The focus of Theme I was to test for differences in the study variables across countries. Theme II focused on the determinants of FI, with more emphasis directed towards social networks in selected African countries. Theme III focused on the determinants of FI, with the emphasis on social networks in each of the selected countries.

From the 21 data sets available from Finmark Trust, the latest data sets from 2014 to 2016 were selected. The datasets derived from the four different Finscope Surveys (namely, South Africa, the DRC, Kenya, Eswatini) covered 22 105 households. The surveys were done at different times, and included respondents from rural and urban areas. This enabled the study to analyse FI at the level of the country's economy, in contrast to some researches that focused on population sub-groups (Saunders *et al.*, 2012).

The study specifically examined statistical associations amongst individuals' financial capability, saving, borrowing, bank penetration and investments, and various factors (demographic, education, income) influencing them were examined.

The use of cross-sectional data is comparatively economical, quicker and suitable for producing an explicatory hypothesis, laying the groundwork for follow-up studies (Sekaran & Bougie, 2010). Cross-sectional data makes statistical explanations and inferences for key variables easier (Brink, 1996).

This research study applied a deductive approach of examination and exploration because the other inductive approach makes use of exploratory methods to establish links among constructs (Saunders *et al.*, 2012). The deductive approach emphasises developing a hypothesis or hypotheses grounded on current theories and then to structure an exploration design that tests the hypothesis. On the other hand, an inductive approach is concerned with building theory using quantitative or exploratory techniques for the establishment of patterns or relationships between variables. The major drawback of inductive judgements is that it depends on observations, and in the case of incomplete observations, unreliable outcomes may be articulated (Saunders *et al.*, 2012). According to Johnson and Turner (2003), the conjectural-deductive approach is often applied to design or elucidate earlier theories in line with the new understanding.

4.9.1 Unit of analysis

The majority of FI literature concentrated on the supply side, while the current study focused on both demand and supply. The study aimed to suggest solutions to financial exclusion in Africa, and used a sample of four countries, which are the DRC, Kenya, Eswatini and South Africa. Factors influencing FI, with the emphasis on the social networks in the specific countries in the sample were also explored. Therefore, in the current work, the component of analysis also included adults from the four selected African countries.

4.10 GENERAL MODEL ARRANGEMENT OF FI FUNCTION

There are several elements that influence FI levels in developing nations. The leading elements as acknowledged by literature consist of age, education, religion, education, marital status, branch access, location, internet access, social network, formal employment (salary), income, proof of residence, financial advice and gender. In light of these aspects, the FI utility is epitomised by the ensuing universal model description:

FI = f (age, age^2 , education, religion, education, marital status, branch access, location, internet, salary, income, proof of residence, financial advice, social network, gender, phone) + e [9]

4.10.1 Factors influencing financial inclusion

To find the determinants of FI, a regression can be run with FI being the dependent variable. An understanding of the factors influencing financial inclusion/exclusion in a country is essential to prevent the occurrence and reoccurrence of problems. This will assist in developing measures or policies for intervening, correcting or preventing the issues that may influence an individual.

As the objective is to ascertain the factors influencing the resolution to be financially included, a model was formulated as below. The decision to use official financial services is determined by numerous explanatory variables.

As discoursed in the World Bank (2015), the potential variables were classified into four groups, namely, Demographic (D) [Age, Age^2, Gender, Marital status, Proof of residence, Branch access, Location], Human Capital (H) [Level of education, Financial advice], (C) [Social networks, Internet, Phone] and Income (I) [Salaried/not salaried, Level of income]. The regression expression becomes:

$$FI= \beta_0 +\sum_{i=1}^{n}\beta_i \, D_i +\sum_{i=1}^{n} \propto_i H_i + \sum_{i=1}^{n} \mu_i Ci + \sum_{i=1}^{n} \Omega_i \, I_i + \mathrm{e},$$ [10]

Where, FI is the dependent variable of financial inclusion; β_0 is y intercept, β_i is coefficient of the D_i (demographic group); Ω_i is coefficient of I_i (Income group); μ_i is coefficient of the C_i (communication group); and α_i is coefficient of the H_i (Human capital group).

To achieve Objective number 1, that is, to find the factors influencing FI using a combined data set from selected African countries, the study estimated the following model of equation:

FI_A = β_0+ $\beta_1$age + $\beta_2$gen + $\beta_3$mar + β_4Proof + β_5 Baccess + β_6Loc + $\beta_7$age^2 + $\alpha_1$edu+ μ_2 media+ α_3Advice + μ_4 internet + $\mu_5$phone +Ω_1 sala +Ω_2 Inc + e,   [11]

Where, FI_A is the financial inclusion indicator for combined data set.

To achieve Objective number 2, to find the factors affecting FI in Kenya, it was necessary to estimate the following model of equation:

$FI_K = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$ [12]

Where FI_K is the financial inclusion indicator for Kenya.

To explore the factors influencing FI in the DRC, the following model of equation was estimated:

$FI_D = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$ [13]

Where FI_D is the financial inclusion indicator for the DRC.

To determine the factors influencing FI in South Africa, the following model of equation was estimated:

$FI_{SA} = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$ [14]

Where FI_{SA} is the financial inclusion indicator for South Africa.

To find the factors influencing FI in Eswatini, the following model of equation was estimated:

$FI_{SW} = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$ [15]

Where FI_{SW} is the financial inclusion indicator for Eswatini.

To estimate the factors influencing financial inclusion, the hypotheses that were tested are presented below. These were used to address both Theme II and III of the thesis. Section 4.10.3 discusses how the data were presented and analysed.

4.10.2 Hypotheses

To allow for the comparison of the variables across the four countries selected for the study, the differences needed to be investigated. Calculations of the F-statistic showed the differences between groups and it was applied to infer conclusions. A significance value of ≤ 0.05 concluded that there are significant differences across the four countries. Therefore, the following hypotheses were tested accordingly:

H_1: There are FI differences among individuals in the designated nations,

H_2: There are differences in the age structures of individuals in the designated countries,

H_3: There are gender differences among the respondents in the designated nations,

H_4: There are differences in the marital status of individuals in the four designated nations,

H_5: There are differences in the proof of residence of individuals in the designated nations,

H_6: There are differences in physical access among individuals in the designated nations,

H_7: There are differences in location in the designated nations,

H_8: There are differences in education among individuals in the designated four nations,

H_9: There are differences in the use of social networks among individuals in the designated nations,

H_{10}: There are differences on the issue of financial advice among individuals in the designated nations,

H_{11}: There are differences on the use of internet among individuals in the designated four nations,

H_{12}: There are differences on phone use among individuals in the designated four nations,

H_{13}: There are differences in the nature of jobs among individuals in the designated four nations,

H_{14}: There are differences in income earned among individuals in the designated four nations.

The first and second objectives of the study were to determine the determinants of financial inclusion, with the emphasis on social networks in selected African countries, and in individual countries, respectively. From the research questions the hypotheses were developed. Informed by literature the following hypotheses guided this study.

H_{031}: Age has no influence on financial inclusion,

H_{032}: Age^2 has no influence on financial inclusion,

H_{033}: Gender has no influence on financial inclusion,

H_{034}: Marital status has no influence on financial inclusion,

H_{035}: Proof of residence has no influence on financial inclusion,

H_{036}: Branch access has no influence on financial inclusion,

H_{037}: Location has no influence on financial inclusion,

H_{038}: Level of education has no influence on financial inclusion,

H_{039}: Social networks have no influence on financial inclusion,

H_{040}: Financial advice has no influence on financial inclusion,

H_{041}: Phone has no influence on financial inclusion,

H_{042}: Employment history has no influence on financial inclusion,

H_{043}: Salaried/not salaried has no influence on financial inclusion,

H_{044}: Level of income has no influence on financial inclusion, and

H_{045}: Internet access has no influence on financial inclusion.

The hypotheses were used to estimate the determinants of FI in selected African countries using combined data, and in each of the four countries. Section 4.10.3 below explains how the data was analysed.

4.10.3 Data explanation and analysis

Probit Models were estimated to investigate the determinants of FI in 1) a combined data set from selected African nations, 2) South Africa, 3) the DRC, 4) Eswatini, and 5) Kenya.

In this study, the Probit models consider as the regressand, FI, whether a person uses formal financial facilities or not. That is, 1 if an individual uses formal financial facilities and 0 if excluded. In a dichotomous regressand, concern is mainly in the dependent likelihood:

$P(FI=1|x)= P(FI=1|x_1, x_2, \ldots, x_k)$, [16]

Where,

FI is a financial inclusion measure.

x is the complete set of predictor variables.

The Linear Probability Model (LPM) was employed mainly to permit the study to find a coefficient approximation at once. An estimation was obtained, instead of the valuation of scaled coefficients that are attained with the probit regression that requires transformation. As the emphasis of this research was to explore the determinants of the resolution to be financially included, this would not be problematic, since LPM and the Probit Models generate similar coefficient approximations at the mean (Wooldridge, 2013). To solve a possible weakness associated with LPM, that is, heteroskedasticity (that nullifies numerical implication), the predictable errors brought by models are robust to heteroskedasticity. For the circumvention of LPM restrictions, the study, furthermore, considered a category of dichotomous regressand of the formula:

$$P(FI=1|x) = G(\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k) \qquad [17]$$

Where,

G is a function captivating values ranging from zero to one: $0 < G(z) < 1$ for all statistics z. The Logit and Probity regressions are applied in popular research studies, implying that either can be used (Wooldridge, 2002:575). For the current study, probit regression was approximated, together with LPM for a probe of robustness. In that Probit regression, G is the typical normal cumulative distribution function (cdf) that is stated as an integral:

$$G(z) = \phi(z) = \int_{-\infty}^{z} \phi(v)\, dv, \qquad [18]$$

Where,

$\phi(z)$ is the standard normal density.

$$\phi(z) = (2\pi)^{-1/2} \exp(-z^2/2) \qquad [19]$$

The next task was to perform a maximum likelihood approximation as a sequence of probit regression. The dichotomous choice regression was formed from an individual having any of the following 16 FI proxies:

Saving with bank, Saving with other formal financial institutions, Invest with bank, Invest with other formal financial institutions, Invest in unit trusts, Invest in Treasury

Bills, Invest with insurance firms, Invest in shares, Borrow from bank, Borrow from other formal financial institutions, Bank account, Has a fixed account, Has a call account, Has a forex account, Has a bank overdraft, and Has a loan account with bank.

4.10.4 Multicollinearity between the independent variables

Collinearity infers that two variables are near perfect linear amalgamations of each other, and in a case of more than two variables, is called multicollinearity (Sekaran & Bougie, 2010).

As the degree of multicollinearity rises, the regression model estimates become unstable and the coefficients standard errors become wildly inflated. The five datasets were further tested to check the absence of multicollinearity within the hypothesised models (Hair *et al.*, 2010; Field, 2009).

The current study measured multicollinearity by using The Variance Inflation Factor (VIF) and Tolerance, which two are closely-related statistics for diagnosing collinearity in multiple regression (Miles, 2014:1). The common cut-off value is a VIF of 10 and a tolerance value of 0.10 (Hair *et al.*, 2010).

In all five models, that is, for Africa, Kenya, the DRC, RSA and Eswatini, the VIF and Tolerance (1/VIF) values for Age and Age-squared were worrisome (Appendix D). This was expected, since the two variables are closely linked. Omitting Age-squared, the VIF and (1/VIF) values fell within the acceptable levels in all five cases.

All the other variables were within acceptable levels, an indication that there is no multicollinearity present. As there was no multicollinearity within the hypothesised models, there was a need to test for differences in the variables used across the selected four countries. The section below discusses the tests that were conducted.

4.10.5 Testing for differences

In the current study, hypotheses were tested to find the extent to which variables used in the study differ across the selected four countries. Hypotheses tests were done using ANOVA, involving the means and the F-statistic. Tests of differences were sought on the following: FI, Age, Gender, Marital status, Proof of residence, Branch access, Location, Education, Social networks, Financial advice, Internet access, Phone, Salary, and Income.

4.10.6 Robustness checks

Having run probit models, the results were compared with those from the LPM. The current study used LPM for a robustness check, while the probit results were reported as depicted in Tables 5.12 to 5.16. According to Young and Kroeger (2015:53), the lack of comparability in regression coefficients across different functional forms can be a frequent and cumbersome problem in multi-model analysis. Young and Kroeger recommend focusing on the key aspects of results that are consistently comparable: the signs and significance tests.

4.11 CONCLUSION

The chapter focused on the four main methodological issues in the current study. Initially, a number of potential independent variables influencing FI were discussed, and their expected relation with the dependent variable FI was given. A summary was also given of the variables used in extant studies, and those that have not been applied. The chapter also acknowledged that the use of proxies for FI is a difficult task in empirical research. A summary of the FI proxies was given under the four different dimensions, which are Saving, Investment, Borrowing and Bank penetration that were identified in this study.

Secondly, the heteroskedasticity problem that characterises cross-sectional survey data affecting the outcomes of the study was explained. Two different tests to address the heteroskedasticity problem were discussed. The diverse methods implemented by empirical scholars to tackle the endogeneity challenges were deliberated. Thirdly, the progression of Binary Regression replicas of Logit and Probit were discussed. Fourthly, the Logit/Probit Models used in previous FI-related studies were critically assessed and appraised.

An appropriate econometric methodology and exploration strategy for testing the hypotheses, framed in view of the highlighted methodological concerns were subsequently established. This chapter explained the reasons for the assortment of Probit Models in addressing the purposes and demands of the research work. The probit models estimated in the present research work were capable of aiding the analysis of the study to produce the crucial outcomes and deductions relevant to determinants of FI in selected African countries. The extant empirical work and the

fulcrum of the present research work were instrumental in the selection of the binary model employed in the study. The criteria leading to the choice of country data sets used in the study were explained.

The next chapter tests the hypotheses advanced or answers questions in the introductory segment by employing the Probit Models. For a robustness check, the LPM was estimated. In the next chapter, the Probit Model results are reported and interpreted.

CHAPTER 5:
ESTIMATION AND EMPIRICAL RESULTS

5.1 INTRODUCTION

The previous chapter advanced the econometric approximation modus operandi crucial to tackling the research problem, as well as the purpose of the present research. The major aim of the current study was to explore the determinants of FI in selected African countries, with more emphasis directed towards social networks. This chapter reports and interprets the outcomes obtained from the selected econometric estimation techniques consistent with the purpose of the study. The chapter begins by presenting and interpreting the results addressing Theme I, which ascertains the differences to the study variables across countries. The theme is structured in the following manner: Section 5.2.1 considers the preliminary estimates of the investigation's outcomes and Section 5.3.1 discusses the correlation among key variables. Theme II presents the results related to the determinants of FI in Africa. The determinants of FI in each of the selected countries are presented under Theme III. Section 5.5 delivers a brief summary of the entire chapter.

5.2 PRELIMINARY ESTIMATION DIAGNOSTICS

Three forms of preliminary estimation diagnostics, specifically, descriptive data, correlation investigation and analysis of variance were done for the current study using Stata software packages. According to Rykov, Balakrishnan and Nikulin (2010:369), the software package is preferred for preliminary approximation diagnostics, since it is not problematic to employ and can be used devoid of any programme design. The following section discusses the pre-estimation diagnostics.

5.2.1 Descriptive data

Descriptive statistics helped to describe and understand the characteristics of the five data sets used in the current study. The percentages, mean and standard deviation were analysed for the current study using Stata software. Table 5.1 (on the next page) presents the statistics for the combined data set, RSA, the DRC, Eswatini and Kenya.

Table 5.1:   Descriptive statistics

Characteristics of individuals Eswatini	Combined			RSA			DRC			Esswatini			Kenya		
	%	Mean	SD	%	Mean	SD	%	Mean	SD	%	Mean	SD	%	Mean	SD
Total respondents (N)	22.105			5,000			5,000			3,440			8,665		
Financially included	47	.533	.499	70	.695	.460	66	.666	.472	48	.478	.499	62	.385	.487
Location: Urban	46.4	.464	.499	78	.784	.411	30	.299	.458	30	.297	.457	44	.440	.496
Gender: Male	42	.416	.493	45	.446	.497	47	.473	.499	36	.356	.479	39	.391	.488
Marital status: Married	49.6	.496	.499	32.5	.325	.468	49	.493	.500	48	.475	.499	60	.604	.489
Level of education:		1.592	.839		2.053	.569		1.683	.759		1.561	.872		1.289	.869
No official education	2.468			2			6.2			15			18		
Primary education	6.711			7.73			31.1			26			45		
Secondary education	10.277			73.31			50.9			48			28		
Tertiary education	2.649			16.96			11.8			11			9		
Average (years):		39.521	15.94		39.831	15.172		42.584	14.590		40.470	16.40		37.197	16.571
15-25	20			19.5			8.2			20			28		
25-35	27			25.2			23.5			29			29		
35-45	21			22.6			28.7			18			18		
45-55	14			15.8			21.1			13			10		
55-65	10			10.5			12.4			11			8		
65-75	5			4.56			4.9			6			4		
75-85	2			1.5			1.1			2.5			2		
85-95	0.6			0.01			0.1			0.5			0.9		
95[+]	0.4						0						0.1		

Proof of residence:		.592	.492		.747	.435		.086	.279		.915	.279		.666	.472
Has evidence of residence	59.19			75			8.6			91			67		
No evidence of residence	40.81			25			91.4			9			33		
Salary:		.222	.416	40	.401	.490	13	.132	.339	28	.278	.448	15	.148	.356
Salaried	22.20			60			87			72			85		
Not salaried	77.80														
Level of income(USD)		3.905	1.499		4.182	1.819		3.585	1.361		3.619	1.618		4.038	1.322
0	0.01			8.86			4.2			6			2		
<18	0.04			0			18.2			0			14.5		
18-35	12			16.4			9.6			15			15.5		
35-139	14.7			13.7			20.6			18			24		
139-348	22.07			15.06			20.1			22			35		
348-695	23.16			5.86			3.4			10			8		
695-1389	0.06			6.64			0			7			0		
>1389	14.35			32.2			20			3			0.8		
Refused/Don't know	0.03			1.28			3.8			10			0.2		
Branch access (time):		1.542	.969	56	1.401	.628		2.351	1.067	24.7	1.195	1.204		1.588	.869
<30 minutes	41.52			20.6			23.9			20.3			50		
30-60 minutes	19.83			5.4			27.1			14.4			23		
60-190 minutes	6.87			17			12.1			4.1			7		
>190 minutes	22.11			1			17.3			5.2			5		
	4.04						20.3						7		
Use social network	19.83	.198	.399	25	.252	.434	6	.062	.242	25	.256	.436	22	.223	.417
	80.17			75			94			75			78		

Do not use social network															
Use internet Don't use internet	16.92 83.08	.169	.375	29 71	.289	.453	7 93	.07	.255	16 84	.158	.364	16 84	.163	.369
Get expert advice Don't get expert advice	15.47 84.53	.155	.362	9 91	.086	.281	1.4 98.6	.014	.119	67 33	.677	.468	7 93	.068	.251
Possess a phone Do not possess a phone	76 24	.834	.292	85 15	.8492	.358	61 39	.6114	.487	68 32	.898	.302	74 26	.739	.439

Source: Finscope Data Surveys

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5.2.1.1   *Combined data set*

The combined data set showed that Kenya had the highest number of respondents (39%), followed by South Africa and the DRC with 23% (n=5000), and lastly, Eswatini (15%). More of the respondents that were interviewed lived in the rural areas (53.6%) than the urban areas (46.4%). Table 5.1 shows that more respondents were women (58%), and more were not married (50.4%). About 11% of the population did not attend formal education, while more than 50% attained secondary and tertiary education. With a large percentage of a population not having attained at least secondary education, financial education programmes may be difficult to implement.

The majority of the respondents were below 55 years (83%) showing that the bulk of them are still in their active and productive stage. One worrisome fact shown in the table above is that only 59% of the respondents had proof of residence, making it problematic for the rest to open accounts with formal financial organisations. Approximately 78% of the respondents did not receive a regular income or were not formally employed. Such a high level of informal employment negatively influences FI levels across the African continent.

Income level is also a worrying factor, as 31% in the selected African countries were earning below USD140 monthly, with only 14% earning above USD1389. However, 625 respondents could not provide their monthly income. About 41.5% (n= 9,179) of the respondents take less than 30 minutes to get to the nearest bank branch, whilst 22% (n=4,888) take more than 190 minutes, showing that a huge fraction of the populace has no or limited access to infrastructure on the continent. The physical infrastructure (presence) of banks is still an influential factor in financial services delivery in many countries in Africa. The majority of the respondents (80%) are not part of a social network, although 76% of them possess mobile phones.

Only 17% of the respondents have access to the Internet, which is a worrying state of affairs in this day and age. Internet use has many benefits that include information accessibility and it also serves as a financial services platform. About 15% of the respondents are privileged to have access to financial advice that may have an influential role on FI levels across the African continent. About 53% of the respondents were financially included, which is worrisome as 47% were still excluded.

Standard deviation (SD) reflects a large amount of variation in the group being studied. For FI variable, the SD of 0.498912 shows how varied the respondents are in terms of the number of financial products they possess (see Table 4.4). Location, gender and marital status had approximately the same SD of 0.49, meaning that the values in the data set are close to the mean. A high standard deviation of .9695382 of branch access time reflects how respondents are dispersed from their nearest formal financial institution. The small SD for social media, internet access, financial advice and mobile phone means that the values in the statistical data set were close to the mean.

5.2.1.2 *South Africa (RSA)*

As shown in Table 5.1, out of the 5 000 respondents from South Africa, 78% were from rural areas, 55% were female, while 67.5% were not married. With regard to education, 90% attained secondary and tertiary education, which makes it easier for financial education to raise FI levels. About 75% of the respondents had proof of residence, which is a major requirement for an individual opening an account with a formal financial organisation. Those formally employed or receiving regular income constituted 40%, and 39% earned at least USD695 per month. These two variables play a key role in determining FI levels. About 56% of the respondents take 30 minutes or less to get to the nearest bank branch or agent, showing a positive sign regarding infrastructure accessibility.

Of the respondents, 75% were a part of a social network, a figure that was lower than the 85% who possessed mobile phones. About 91% of the respondents had access to financial advice or had consulted experts at some stage, which has a huge bearing on FI levels. Only 29% of the respondents use the Internet that may have a bearing on the FI levels of the country. About 85% of the population use cell phones, which could be the right foundation for digital FI. About 70% of the respondents were financially included, which is a cause for concern as 30% are still excluded.

The standard deviation (SD) reflects a large amount of variation in the group being studied. For the FI variable, an SD of 0.46028 reflects the varied number of formal financial products the respondents have. The number of products range from one to 16 as depicted in Table 4.4. The SD for location, gender and marital status had approximately the same SDs of 0.41127, 0.49710 and 0.4684217, respectively, which means that the values in the data set are close to the mean. The high SD for age and

level of income shows how varied the values in the data set are farther away from the mean. The ages of the individuals ranged from 15 to 95 years, and income varied from 0 to >USD1 389. The SD for branch access reflects the variation in the times it took to reach the nearest formal financial facility. The small SD for social media, internet access, financial advice and mobile phone means that the values in the statistical data set were close to the mean.

5.2.1.3 Democratic Republic of Congo (DRC)

Of the 5 000 respondents in the DRC, 70% were from rural areas; 50% females; and 51% not married. About 63% attained secondary and tertiary education, 87% were informally employed, while 20% earned USD695 and above. A worrying fact is that 91% of the respondents were without proof of residence, which is an important document that is required to open an account. Only 9% spend 30 minutes or less to get to the nearest branch or agent, which may imply lack of infrastructure in the DRC. About 94% were not part of any social network, although 61% possessed phones. The high proportion (93%) of those without access to internet and 98.6% not getting financial advice are worrying facts.

Only 7% of the population had access to the Internet, which may be a hindrance to accessing other financial services. One worry is the marginal 13% who were formally employed, which may also influence the level of FI in the country. About 66% of the respondents were financially included, which is worrisome as 33% are still excluded.

In terms of the FI variables, the SD of 0.47187 shows how varied the respondents are in terms of the number of financial products they possess (see Table 4.4). Location and gender had approximately the same SDs of 0.45786 and 0.49930, respectively, meaning that the values in the data set are close to the mean. Level of education and age had high SD, reflecting how the values in the data set are farther away from the mean. The high SD for mobile phone for the DRC reflects how skewed the distribution of data is. The small SD for social media, internet access, social media, and financial advice means that the values in the statistical data set were close to the mean.

5.2.1.4 Eswatini

Table 5.1 shows that 3 440 respondents from Eswatini were interviewed, of which 30% were from urban areas and 48% were married. About 59% attained secondary and tertiary education, showing that the majority of the respondents were still economically

active. Only 28% of the respondents were formally employed, and this status has a huge influence on FI levels. On the income variable, 10% of the population earned USD695 per month.

To get to the nearest financial services provider, 30% of the respondents took 30 minutes or less. About 68% possessed cell phones but only 25% were part of a social network, and close to 16% used the Internet. Close to 48% of the respondents were financially included, which is worrisome, as 52% are still excluded.

The standard deviation (SD) reflects a large amount of variation in the group under study. The high SD of 0.499597 for FI shows how varied the respondents are in terms of the number of financial products they possess. Location, gender and marital status have approximately the same SD of 0.4571, 0.4788 and 0.4995, respectively, meaning that the values in the data set are close to the mean. A high standard deviation of 0.87237 for branch access time reflects how varied the respondents are from their nearest formal financial institution. The small SD for internet access and mobile phone means that the values in the statistical data set are close to the mean. The larger SD for financial advice reflects how skewed the data distribution is.

5.2.1.5   *Kenya*

The study included 8 665 respondents from Kenya, with 44% being from urban areas. About 39% were male, 60% were married, while 37% had attained secondary or tertiary education. The economically active (≤55 years) constituted 85% of the population of the study in Kenya. About 67% had proof of residence, 15% earned salaries or were formally employed. About half of the respondents took 30 minutes or less to get to the nearest financial services provider.

About 74% had cell phones but only 22% were part of a social network. Only 16% used the Internet, which may make it difficult to introduce digital financial services. Also worrisome is the fact that only 7% received financial advice, and 38% of the respondents were financially excluded.

The SD of 0.48659 for FI showed how varied the respondents are in terms of the number of financial products they possess. Location, gender and marital status have SDs of 0.49642, 0.48789 and 0.48908, respectively, reflecting how skewed the values are distributed. A high SD of 16.5707 for age reflects how the values in the data set are farther away from the mean. The issue of outliers in the age of respondents also

explain the large of SD. The skewed value distribution for proof of residence and mobile phone is reflected in the large SDs of 0.47154 and 0.43891, respectively. Salary, internet access and financial advice had small SDs, meaning that the values in a statistical data set are close to the mean.

5.3   THEME I: DIFFERENCES IN THE STUDY VARIABLES

The aim of this section is to explore the links and differences in FI variables across countries. The independent variables considered are as follows: age, gender, marital status, proof of residence, physical access, location, education, social networks, financial advice, internet access, mobile phone, salary and income.

As highlighted in Section 4.6, it is problematic to circumvent misplaced or missing figures and varying data in surveys (Hair *et al.*, 2010). The current study used the Multiple Imputation Technique to solve the challenge of missing values in the data (see Appendix D). The Stata software was used to impute the data.

As discussed in Chapter 4, the current study assessed multicollinearity using the variance inflation factor (VIF) and tolerance (1/VIF) values. The acceptable close-off value is a VIF of 10, and a tolerance value of 0.10 (Hair *et al.*, 2010; Field, 2009). For all five models, that is, for Africa, Kenya, the DRC, South Africa and Eswatini, the VIF and tolerance (1/VIF) values were within acceptable ranges, except for age and age-squared (see Appendix E). For age and age-squared, it was expected, as the two variables are closely linked as shown by their correlation values that range from 0.96 to 0.77 (see Tables 5.2 to 5.6).

This type is known as structural multicollinearity that arises when a model term is created using other terms. A further test was done that omitted age-squared, and the resulting VIF and (1/VIF) fell in the acceptable ranges, including those of other variables in all five models. Although multicollinearity may cause problems, it is not always necessary to attempt to correct it, particularly when it is structural in nature (El-Dereny & Rashwan, 2011).

The following section discusses the strength and direction of a linear relationship among all the variables.

5.3.1 Correlation among the key variables

After finding the frequency, mean and standard deviation, the research established the focus, as well as landscape of the links among all the variables employing Pearson's connection. The outcomes of the correlation analysis matrix for all five data sets/models considered in this study are shown in Tables 5.6 to 5.10.

Correlation analysis is a statistical method that shows whether variables are associated, which is vital in measuring the negative or positive relationship between the variables under study. The Zero Order Pearson correlation analysis examined the relationships.

The primary reason for using the Pearson's correlation coefficient for binary, continuous, and ordinal data is that it measures the soundness of the rectilinear link between two variables. The Pearson's correlativity statistic is linked to linear regression; it attempts to draw a line of best fit through data of two variables. Therefore, the magnitude of the relationship is measured on a scale of -1 to +1. Zero shows no relationship, implying that as the value of one variable increases, the other one is random. In addition, as the value (r) approaches -1, it signifies a negative relationship, implying that one variable increases when the other one decreases. As the value approaches +1, it indicates a positive link, meaning that as the value of a variable increases, the other increases.

Table 5.2 (on the next page) presents the results of the combined pairwise correlations.

Table 5.2:   Combined pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) FI	1.00														
(2) Age	0.06*	1.00													
(3) Age-squared	0.01	0.97*	1.00												
(4) Gender	0.15*	0.00	-0.00	1.00											
(5) Marital status	0.03*	0.11*	0.07*	-0.04*	1.00										
(6) Proof of res	0.06*	0.11*	0.12*	-0.05*	0.05*	1.00									
(7) Branch access	-0.02	0.03*	0.03*	0.02*	0.05*	-0.08*	1.00								
(8) Location	0.23*	-0.09*	-0.10*	0.01	-0.08*	-0.05*	-0.27*	1.00							
(9) Education	0.41*	-0.19*	-0.22*	0.13*	-0.10*	-0.06*	-0.13*	0.31*	1.00						
(10) Social media	0.23*	-0.24*	-0.23*	0.08*	-0.09*	0.03*	-0.12*	0.24*	0.34*	1.00					
(11) Advice	0.09*	0.01	-0.00	0.01	0.03*	0.22*	-0.13*	-0.00	0.11*	0.15*	1.00				
(12) Salary	0.27*	-0.03*	-0.07*	0.13*	0.03*	0.18*	-0.03*	0.15*	0.23*	0.15*	0.14*	1.00			
(13) Income	0.39*	-0.00	-0.05*	0.14*	0.16*	0.06*	-0.05*	0.23*	0.26*	0.25*	0.09*	0.37*	1.00		
(14) Internet	0.25*	-0.18*	-0.18*	0.10*	-0.10*	0.03*	-0.12*	0.27*	0.38*	0.64*	0.12*	0.18*	0.26*	1.00	
(15) Mobile phone	0.26*	-0.02*	-0.13*	0.26*	-0.04*	0.04*	-0.14*	0.17*	0.24*	0.34*	0.13*	0.11	0.16*	0.22*	1.00

Source: Stata 12.

* shows significance at the .01 level

The outcomes shown in Table 5.2 reveal a positive linear link between age and the following variables: age-squared, marital status, proof of residence, branch access and financial advice. A negative association was observed between location, education, media, salary, income, internet and phone. The correlation coefficient between age and gender was 0, demonstrating that there is no relationship between the two variables.

Age-squared was positively correlated with marital status, proof of residence and physical access but had a negative relationship with the rest of the variables. Gender showed a negative association with marital status and proof of residence but was positively correlated with the rest of the variables under study.

Marital status was negatively correlated with phone, internet, media, education and location, with a positive association with the rest of the independent variables. Proof of residence showed a negative association with the following: physical access, location and education with positive relationship with the rest of the variables.

Location had a positive correlation with all the variables save for advice that maintained a negative correlation. Education showed a positive correlation with all the variables under study.

The following variables reported a positive correlation to each other: media, advice, salary, income, internet and phone.

The correlation analysis results are in line with theoretical predictions. The low magnitudes of the relationships show that the problem of multi-collinearity might not exist between and among most variables used for the current study. This is consistent with El-Dereny and Rashwan's (2011) observations.

Table 5.3 (on the next page) shows the pairwise correlations for the DRC.

Table 5.3: Pairwise correlations: DRC

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) FI	1.00														
(2) Age	0.04*	1.00													
(3) Age-squared	0.02	0.96*	1.00												
(4) Gender	0.16*	0.05*	0.04*	1.00											
(5) Marital status	0.05*	-0.03	-0.06*	-0.13*	1.00										
(6) Proof of res	0.12*	0.07*	0.07*	0.09*	0.09*	1.00									
(7) Branch access	-0.13*	0.00	0.00	0.05	0.04	-0.01	1.00								
(8) Location	0.12*	0.01	-0.00	-0.11*	-0.02	0.10*	-0.25*	1.00							
(9) Education	0.34*	-0.02	-0.04*	0.10*	0.00	0.13*	-0.20*	0.25*	1.00						
(10) Social media	0.12*	0.00	-0.00	0.01	-0.08*	0.07*	-0.13*	0.22*	0.24*	1.00					
(11) Advice	0.08*	0.02	0.02	-0.02	0.03	0.08*	-0.05	0.09*	0.10*	0.09*	1.00				
(12) Salary	0.14*	0.01	0.00	0.10*	0.07*	0.11*	-0.07*	0.08*	0.21*	0.09*	0.08*	1.00			
(13) Income	0.25*	-0.02	-0.04	0.09*	0.15*	0.10*	-0.20*	0.14*	0.25*	0.12*	0.08*	0.19*	1.00		
(14) Internet	0.13*	0.01	0.00	0.03	-0.07*	0.07*	-0.14*	0.23*	0.25*	0.72*	0.09*	0.11*	0.14*	1.00	
(15) Mobile phone	0.24*	-0.01	-0.02	0.05*	0.04*	0.13*	-0.18*	0.24*	0.28*	0.21*	0.07*	0.12*	0.24*	0.22*	1.00

Source: Stata 12. shows significance at the .01 level

Table 5.3 shows that age negatively correlated with marital status, education, income and phone, with a positive association with the rest of the variables. Age-squared was negatively correlated with marital status, education, income and phone. Age-squared had no relationship with salary, internet and physical access, as the correlation values were 0.

Gender was negatively associated with the following marital status, location and advice, with a positive relationship with the rest of the remaining independent variables. Marital status was negatively associated with media, location and internet with the rest of the variables maintaining a positive relationship.

Proof of residence had a positive relationship with all other independent variables, save for physical access. Physical access reported a negative relationship with all the variables.

Education, location, media, advice, salary, income, internet and phone showed positive relationships among themselves. The low magnitudes of the relationship show that the problem of multicollinearity might not exist between and among most variables used for the current study.

Table 5.4 (on the next page) shows the pairwise correlations for Kenya.

Table 5.4:   Pairwise correlations: Kenya

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) FI	1.00														
(2) Age	0.04*	1.00													
(3) Age-squared	0.02	0.96*	1.00												
(4) Gender	0.16*	0.05*	0.04*	1.00											
(5) Marital status	0.05*	-0.03	-0.06*	-0.13*	1.00										
(6) Proof of res	0.12*	0.07*	0.07*	0.09*	0.09*	1.00									
(7) Branch access	-0.13*	0.00	0.00	0.05	0.04	-0.01	1.00								
(8) Location	0.12*	0.01	-0.00	-0.11*	-0.02	0.10*	-0.25*	1.00							
(9) Education	0.34*	-0.02	-0.04*	0.10*	0.00	0.13*	-0.20*	0.25*	1.00						
(10) Social media	0.12*	0.00	-0.00	0.01	-0.08*	0.07*	-0.13*	0.22*	0.24*	1.00					
(11) Advice	0.08*	0.02	0.02	-0.02	0.03	0.08*	-0.05	0.09*	0.10*	0.09*	1.00				
(12) Salary	0.14*	0.01	0.00	0.10*	0.07*	0.11*	-0.07*	0.08*	0.21*	0.09*	0.08*	1.00			
(13) Income	0.25*	-0.02	-0.04	0.09*	0.15*	0.10*	-0.20*	0.14*	0.25*	0.12*	0.08*	0.19*	1.00		
(14) Internet	0.13*	0.01	0.00	0.03	-0.07*	0.07*	-0.14*	0.23*	0.25*	0.72*	0.09*	0.11*	0.14*	1.00	
(15) Mobile phone	0.24*	-0.01	-0.02	0.05*	0.04*	0.13*	-0.18*	0.24*	0.28*	0.21*	0.07*	0.12*	0.24*	0.22*	1.00

Source: Stata 12.

* shows significance at the .01 level

In Table 5.4, age is negatively associated with marital status, education, income and phone, with positive correlations with the rest of the variables. Age-squared was negatively associated with education, income and phone; and had positive relationship with the rest of the variables.

Gender also shows a negative relationship with marital status, location and advice. Marital status showed a negative relationship with location, media and internet.

Proof of residence had a positive association with all other variables, except for physical access that had a negative relationship.

Location, education, media, advice, salary, income, internet and phone were positively correlated among themselves. The low magnitudes of the relationship show that the problem of multi-collinearity might not exist between and among most variables used for the current study.

Table 5.5 (on the next page) shows the pairwise correlations for South Africa.

Table 5.5:   Pairwise correlations: South Africa

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) FI	1.00														
(2) Age	0.13*	1.00													
(3) Age-squared	0.08*	0.98*	1.00												
(4) Gender	0.05*	-0.09*	-0.09*	1.00											
(5) Marital status	0.15*	0.28*	0.23*	0.06*	1.00										
(6) Proof of res	0.37*	0.26*	0.22*	-0.02	0.20*	1.00									
(7) Branch access	-0.13*	-0.05*	-0.04*	-0.01	-0.09*	-0.13*	1.00								
(8) Location	0.22*	0.01	-0.00	0.01	0.12*	0.17*	-0.44*	1.00							
(9) Education	0.27*	-0.15*	-0.18*	0.10*	0.11*	0.18*	-0.18*	0.27*	1.00						
(10) Social media	0.21*	-0.26*	-0.25*	0.03	-0.03	0.07*	-0.15*	0.19*	0.30*	1.00					
(11) Advice	0.20*	0.10*	0.08*	0.04*	0.16*	0.17*	-0.13*	0.14*	0.29*	0.18*	1.00				
(12) salary	0.43*	-0.06*	-0.12*	0.15*	0.14*	0.30*	-0.12*	0.20*	0.27*	0.21*	0.19*	1.00			
(13) Income	0.57*	0.21*	0.16*	0.09*	0.23*	0.45*	-0.19*	0.20*	0.32*	0.22*	0.34*	0.61*	1.00		
(14) Internet	0.26*	-0.18*	-0.18*	0.06*	0.04*	0.11*	-0.17*	0.19*	0.37*	0.60*	0.25*	0.23*	0.32*	1.00	
(15) Mobile phone	0.23*	-0.22*	-0.14*	0.06*	0.13*	0.42*	-0.26*	0.25*	0.31*	0.23*	0.31*	0.24*	0.21*	0.45*	1.00

Source: Stata 12.

* shows significance at the .01 level

Table 5.5 shows age having a negative relationship with gender, physical access, education, media, salary, internet and phone. Age-squared had positive relationships with marital status, proof, advice and income.

Gender had a negative relationship with proof and physical access. Marital status had a negative relationship with physical access and media.

Proof had a negative relationship with physical access. Physical access had negative relationships with all the variables under study.

Location, education, media, advice, salary, income, internet and phone had positive relationships among themselves. The low magnitudes of the relationship show that the problem of multicollinearity might not exist between and among most variables used for the current study.

Table 5.6 (on the next page) shows the pairwise correlations for Eswatini.

Table 5.6:   Pairwise correlations: Eswatini

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) FI	1.00														
(2) Age	-0.01	1.00													
(3) Age-squared	-0.05*	0.98*	1.00												
(4) Gender	0.21*	-0.06*	-0.06*	1.00											
(5) Marital status	0.07*	0.28*	0.22*	-0.03	1.00										
(6) Proof of res	0.17*	0.10*	0.10*	-0.15*	0.05*	1.00									
(7) Branch access	-0.36*	-0.00	-0.01	0.03	0.08*	-0.06*	1.00								
(8) Location	0.28*	-0.14*	-0.16*	0.09*	-0.12*	-0.17*	-0.07*	1.00							
(9) Education	0.31*	-0.41*	-0.42*	0.10*	-0.07*	-0.10*	0.07*	0.24*	1.00						
(10) Social media	0.30*	-0.34*	-0.33*	0.09*	-0.16*	-0.11*	0.10*	0.20*	0.37*	1.00					
(11) Advice	0.17*	-0.11*	-0.13*	0.08*	0.01	-0.02	0.06*	0.14*	0.16*	0.13*	1.00				
(12) Salary	0.48*	-0.12*	-0.16*	0.22*	0.01	-0.27*	0.12*	0.31*	0.27*	0.26*	0.17*	1.00			
(13) Income	0.50*	-0.06*	-0.11*	0.18*	0.12*	-0.17*	0.15*	0.29*	0.35*	0.30*	0.18*	0.54*	1.00		
(14) Internet	0.25*	-0.24*	-0.23*	0.07*	-0.11*	-0.08*	0.07*	0.21*	0.31*	0.61*	0.12*	0.23*	0.25*	1.00	
(15) Mobile phone	0.24*	-0.25*	-0.29*	0.06*	0.04	-0.05*	0.11*	0.11*	0.27*	0.19*	0.15*	0.15*	0.22*	0.13*	1.00

Source: Stata 12.

* shows significance at the .01 level

In Table 5.6, age is positively related with marital status and proof of residence. Age-squared is positively associated with marital status and proof of residence. Marital status is negatively correlated with location, education, media and internet.

Proof of residence had negative correlations with all the other independent variables. Physical access was negatively associated with location.

Location, education, media, advice, salary, income, internet and phone display positive associations among themselves.

All the correlations between or among variables shown in Tables 5.2 to 5.6 are below 65%, save for the correlation between age and age-squared. The problem of multi-collinearity may not occur among the bulk of the variables applied in the present research work. These results concur with Mason and Perreault's (2016) observations.

The results shown in Tables 5.2 to 5.6 show positive correlations between FI and all the independent variables under study, except for branch access (period of time for journey to the next bank branch or agent). The greater the period of time for the trip to the next bank branch or agent, the less people are financially included. The negative correlation between FI and branch access was expected and in line with predicted relations with dependent variable shown in Table 3.1.

It is also worth highlighting that the correlation between age and age-squared across all five models ranged from 0.96 and 0.98 as expected because of the structural multicollinearity nature (see Section 4.4). All the other correlations in Tables 5.2 to 5.6 are below 65%, showing that the problem of multicollinearity might not occur among and between variables.

The link between FI and all the other independent variables prompted further analysis, such as a Probit Model, for the determination of factors influencing FI in selected countries in Africa.

5.3.2   Testing for differences in the study variables across countries

The current study used the Analysis of Variance (ANOVA) assessment to ascertain whether there were significant dissimilarities among the four selected countries' data sets used. The test that was done addresses Theme I, specifically the research question on whether there are differences in terms of variables across the four countries. The variables that were considered included the following: FI, age, gender,

marital status, proof of residence, physical access, location, education, social media, advice, internet, mobile phone, salary and income.

Post-hoc comparisons, since they have the ability to determine where the differences in the groups lie, were used to investigate the differences (Pallant, 2010). The calculation of the F-statistic that shows the differences in groups was determined and used to infer conclusions, as displayed in Table 5.7.

If the significance value is ≤0.05, it is concluded that there are significant differences in terms of FI among other variables across the four countries. In this regard, the following hypotheses were tested accordingly:

H1: There are FI differences among individuals in the designated nations,

H2: There are differences in the age structures of individuals in the designated countries,

H3: There are gender differences among the respondents in the designated nations,

H4: There are differences in the marital status of individuals in the four designated nations,

H5: There are differences in the proof of residence of individuals in the designated nations,

H6: There are differences in physical access among individuals in the designated nations,

H7: There are differences in location in the designated nations,

H8: There are differences in education among individuals in the designated four nations,

H9: There are differences in the use of social networks among individuals in the designated nations,

H10: There are differences on the issue of financial advice among individuals in the designated nations,

H11: There are differences on the use of internet among individuals in the designated four nations,

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H12: There are differences on phone use among individuals in the designated four nations,

H13: There are differences in the nature of jobs among individuals in the designated four nations,

H14: There are differences in income earned among individuals in the designated four nations.

Table 5.7 presents the analysis of variance (ANOVA) of the study variables.

Table 5.7:   Analysis of variance (ANOVA) of study variables

Variable	Combined	RSA	DRC	Kenya	Eswatini
FI	.5560***	.6656***	.3849***	.6954***	.4782***
Age	40.02**	42.5842**	37.1972***	39.831***	40.4701***
Age^2	1851.96***	2026.25**	1658.19***	1816.647***	1906.76***
Gender	.4162**	.4728***	.3905***	.4458***	.3558***
Marital Status	.4743**	.493***	.6040 ***	.325***	.4753***
Proof of Res	.6034**	.0856***	.6663***	.747***	.9145***
Branch Access	1.6338***	2.3509***	1.5877***	1.4014***	1.1951***
Location	.4552***	.299***	.4400***	.7844***	.2974***
Education	1.6462*	1.6826***	1.2886***	2.0526***	1.5610***
Social Network	.7926***	.0622 ***	.2234***	.2518***	.2552***
Salary	.2399***	.1322***	.14841***	.4008***	.2782***
Advice	.2114**	.0144***	.0676***	.0864***	.6770***
Income	3.8749***	3.5849***	4.0378***	4.1821***	3.6195***
Internet	.16959***	.07***	.1622***	.2886***	.15756***
Mobile Phone	.7746***	.6114***	.7395***	.8492***	.8983***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Finscope Surveys

The table above shows the mean difference and the significance with an asterisk.

The results from the analysis presented in Table 5.7 indicate the following:

There are significant differences in the FI indicators across the selected African countries, and South Africa has the highest level of FI in Africa (Mean=0.6954). The study hypothesised that H1: There are FI differences among individuals in the designated African nations. The results show that there are differences in FI among individuals among the four countries, supporting the hypothesis.

There are significant differences in the age structure across the four countries under study, and the DRC has the highest score (Mean= 42.5842). The study hypothesised that H2: There are differences in the age structures of individuals in the selected countries. The results support the hypothesis that there are differences in the age structures among individuals in the four selected countries.

There are significant differences in the gender variable among the selected African countries, and the DRC had the highest score (Mean=0.4728). The study hypothesised that H3: There are gender differences among the respondents in the four designated nations. The results show that there are differences in the gender variable among individuals in the four countries, supporting the hypothesis.

There are significant differences in marital status across the selected African countries, and Kenya had the highest level of married individuals among the selected African countries (Mean=0.60403). The study hypothesised that H4: There are differences in the marital status of individuals in the four designated nations. The results show that there are differences in the marital status among individuals in the four countries, supporting the hypothesis.

There are significant differences in proof of residence across the selected African countries, and Kenya had the highest level of FI in Africa (Mean=0.3848817). The study hypothesised that H5: There are differences in the proof of residence of individuals in the designated four nations. The outcomes show that there are differences in proof of residence among individuals from the four countries, supporting the hypothesis.

There are significant differences in branch access to a bank branch across the selected African countries, and the DRC had the highest level of physical access in Africa (Mean=2.350937). The study hypothesised that H6: There are differences in physical access among individuals in the designated nations. The outcomes show that

there are differences in physical access among individuals in the four countries, supporting the hypothesis.

There are significant differences in location (urban/rural) in the selected African countries, and RSA had the highest score (Mean=0.7844). The study hypothesised that H7: There are differences in location in the designated nations. The results show that there are differences in location (urban/rural) among individuals in the four countries, supporting the hypothesis.

There are significant differences in education across the selected African countries, and RSA had the highest level of education in Africa (Mean=2.0526). The study hypothesised that H8: There are differences in education among individuals in the designated four nations. The outcomes show that there are differences in education among individuals in the four countries, supporting the hypothesis.

There are significant differences in social networks in the selected African countries and Eswatini had the highest score of social networks in selected African countries (Mean=0.2552). The study hypothesised that H9: There are differences in the use of social networks among individuals in the designated nations. The outcomes show that there are differences in social media access among individuals from the four countries, supporting the hypothesis.

There are significant differences in financial advice indicators in the selected African countries and Eswatini had the highest level of financial advice in selected African countries (Mean=0.0.67703). The study hypothesised that H10: There are differences on the issue of financial advice among individuals in the designated nations. The results show that there are differences in financial advice among individuals from the four countries, supporting the hypothesis.

There are significant differences in internet access use across the selected African countries, and South Africa had the highest level of internet access (Mean=0.2886). The study hypothesised that H11: There are differences on the use of internet among individuals in the designated four nations. The results show that there are differences in internet access among individuals from the four countries, supporting the hypothesis.

There are significant differences in mobile phone use across the selected African countries, and the DRC had the highest level of phone use (Mean=0.6656). The study

hypothesised that H12: There are differences on phone use among individuals in the designated four nations. The outcomes show that there are differences in mobile phone use among individuals from the four countries, supporting the hypothesis.

There are significant differences in the nature of jobs across the selected African countries, and South Africa had the highest score of in that regard (Mean=4.1822). The study hypothesised that H13: There are differences in the nature of jobs among individuals in the designated four nations. The outcomes reveal that there are dissimilarities in the nature of jobs amongst individuals from the four countries, supporting the hypothesis.

There are significant differences in salary (income) indicators across the selected African countries and RSA has the highest level of salary (Mean=0.4008). The study hypothesised that H14: There are differences in income earned among individuals in the designated four nations. The results show that there are differences in salary among individuals in the four countries, supporting the hypothesis.

5.4 THEME II: DETERMINANTS OF FI IN SELECTED AFRICAN ECONOMIES

This theme is concerned with the investigation into the determinants of financial inclusion (FI), using a merged data set. Theme II of this study details the first objective and the two research questions that seek to ascertain the determinants of FI in selected African countries. From the methodological perspective, the study ran some probit models. As cited in literature, according to King and Roberts (2015:1), "Robust standard errors" were used to correct standard errors for model misspecification. For robustness checks, Linear Probability Models were run and probit model results were reported.

The literature reviewed in this study cited Fischer and Reuber (2011) who asserted that social networks can be applied in many ways to influence the effectuation procedures of an industrialist. Fischer and Reuber also recommended studies on how social networks can contribute to the service delivery of financial institutions. In addition, Parra-López *et al.* (2011) posited that the theory has indicated that social networks can bring about gains in terms of planning and winning "shoppers". Kang *et al.* (2007) recommended more research on social networks' supposed value to the

online community. Accordingly, the study took on the challenges identified by the different authors to find the effect on social networks on FI.

The literature overview that was conducted as part of the current study, cited how the implementation of the Trans-theoretical Model (TTM) related to financial behaviour began in the last 20 years. Kerkman (1998) focused on using TTM in financial counselling and brought to the fore a case demonstrating her strategy. Bristow (1997) postulated that the strategy might be employed to shift individuals' financial behaviour in Money 2000[2]. Accordingly, the study takes on the recommendations by some authors to ascertain how financial advice influences the uptake of formal financial products by individuals (O'Neill, 2001; Xiao, Newman *et al.*, 2004).

The literature also cited Chen *et al.* (2018) who found a link between internet use and accessibility of loan facilities. Bruhn and Love (2014) posited that internet access may ease information asymmetry between banks and prospective borrowers. Lenka and Barik (2018) investigated the contribution of online network application to FI in South Asia. Lenka and Barik recommended more studies on the contribution of internet access to the use of formal financial services. The online networks can complement the application of social networks in influencing FI. Accordingly, the current study has confirmed the contribution of internet access to FI in selected African countries.

The findings in this aspect provide the answers to the research questions related to Theme II and the associated objective of finding the determinants of FI in selected African countries. The results from the probit estimation models that were run in this study will be presented and interpreted next.

5.4.1   Estimated empirical results

As alluded to in Chapter 3, this study sought to propose a FI model that factored in social networks. This section presents and interprets the finding in this regard. The proposed FI model is motivated by theory. Despite the existence of studies done on the investigation of determinants of FI (Sahoo *et al.*, 2017; Martinez *et al.*, 2013; Laha & Kuri, 2011; Osei-Assibey, 2009), this study did not come across a model that incorporates social networks, internet access and financial advice.

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[2] a USDA Cooperative Extension project.

During the investigation to come up with an FI model the researcher ran some regression with merged cross-sectional data. Financial inclusion (FI) was the dependent variable and the regressors were age, age^2, gender, marital status, proof of residence, branch access, location, level of education, social networks, financial advice, mobile phone, internet access, salaried/not salaried, and level of income.

As alluded to in Chapter 4, the problem of heteroskedasticity is prevalent in cross-sectional data, therefore, the Breusch-Pagan Test and White Test were done. For the Breusch-Pagan Test for heterogeneity the study rejected H_0 (see Appendix C). The study also rejected H_0 based on the results of the White Test that also rejected the H_0. Therefore, there is heteroskedasticity in all five data sets used in the current study. Heteroskedasticity consistent standard error estimates were used to control for heteroskedasticity. The probit models that used heteroskedasticity consistent standard errors shown in the fourth columns of Tables 5.8 to 5.12 were reported, whilst the other columns are included for robustness checks.

As depicted in Tables 5.8 to 5.12, asterisks are used to denote a p-value below some predetermined level. In the current study, there are three asterisks (***) for $p<0.01$, two asterisks (**) for $p<0.05$, and one (*) for $p<0.1$. The number not in parentheses is called a regression coefficient. The regression coefficient provides the expected change in the dependent variable. A negative coefficient indicates a negative relationship. The number in brackets is a standard error. The standard error is our estimate of the standard deviation of the coefficient.

5.4.2 Empirical results for selected African countries

Equation 11 expresses the empirical estimation of the relationship between financial inclusion (FI) and age, age^2, gender, marital status, proof of residence, branch access, location, level of education, social networks, internet access, financial advice, mobile phone, employment history, salaried/not salaried, and level of income.

Equation 11 is restated below:

$FI_A = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$

The suggested model is applied to estimate the relationship between FI and the aforesaid explanatory variables in selected African countries. The estimated probit models for selected African countries using merged data are presented below.

Table 5.8: **Linear Probability Model (LPM) on determinants of financial inclusion: combined**

Variables	(1) LPM	(2) Probit	(3) LPM (robust)	(4) Probit (robust)
	FI	FI	FI	FI
Age	0.0201***	0.0684***	0.0201***	0.0684***
	(0.00106)	(0.00383)	(0.00115)	(0.00438)
Age-squared	-0.000162***	-0.000535***	-0.000162***	-0.000535***
	(1.15e-05)	(4.14e-05)	(1.26e-05)	(4.78e-05)
Gender	0.0454***	0.131***	0.0454***	0.131***
	(0.00683)	(0.0247)	(0.00685)	(0.0246)
Marital status	-0.0213***	-0.0461*	-0.0213***	-0.0461*
	(0.00699)	(0.0254)	(0.00703)	(0.0257)
Proof of res	0.0943***	0.302***	0.0943***	0.302***
	(0.00753)	(0.0271)	(0.00764)	(0.0273)
Branch access	-0.0506***	-0.179***	-0.0506***	-0.179***
	(0.00356)	(0.0130)	(0.00352)	(0.0129)
Location	0.0907***	0.303***	0.0907***	0.303***
	(0.00748)	(0.0266)	(0.00762)	(0.0262)
Education	0.164***	0.580***	0.164***	0.580***
	(0.00457)	(0.0173)	(0.00447)	(0.0175)
Social networks	0.0910***	0.330***	0.0910***	0.330***
	(0.0103)	(0.0383)	(0.00996)	(0.0376)
Financial advice	0.0620***	0.293***	0.0620***	0.293***
	(0.00863)	(0.0326)	(0.00830)	(0.0321)
Salary	0.0896***	0.360***	0.0896***	0.360***
	(0.00861)	(0.0321)	(0.00831)	(0.0309)
Income	0.0752***	0.283***	0.0752***	0.283***
	(0.00260)	(0.00987)	(0.00259)	(0.0101)

	(1) LPM	(2) Probit	(3) LPM (robust)	(4) Probit (robust)
Variables	FI	FI	FI	FI
Internet	0.0599***	0.339***	0.0599***	0.339***
	(0.0112)	(0.0438)	(0.0104)	(0.0422)
Mobile phone	0.141***	0.517***	0.141***	0.451***
	(0.0119)	(0.0410)	(0.00093)	(0.0483)
Constant	-0.660***	-4.148***	-0.660***	-4.148***
	(0.0237)	(0.0937)	(0.0236)	(0.103)
Observations	22,105	22,105	22,105	15,347
R-squared	0.341		0.341	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Probit models were estimated to find the factors influencing FI in selected countries in Africa. Table 5.8 above shows the results for LPM and Probit before the inclusion of robust standard errors in the first and second columns, then with robust standard errors in the third and fourth columns. Similar results were obtained using LPM and Probit models but the probit results with standard errors were reported. The LPM was used for robustness check, and Table 5.8 shows that the results are robust.

A high or low R-squared is not necessarily good or bad, as it does not convey the reliability of the model, nor whether you have chosen the right regression (Wooldridge, 2002). One can get a low R-squared for a good model, or a high R-squared for a poorly fitted model, and vice versa. The low R-squared of 0.341 reported in the LPM in Table 5.12 was as a result of the study that focused on the human decision whether to use formal financial services or not. This is consistent with Figueiredo *et al.* (2015) who posited that any field that attempts to predict human behaviour typically has R-squared values lower than 50%.

The age variable is significant at 1% significance level, and is firmly linked to FI in selected African countries. This implies that as age rises, the likelihood of one using an official financial facility increases. A person's age is a vital element affecting their FI status. Age-squared was significant at 1% level by a negative relationship. As age-squared increases or decreases, FI levels decrease or increase, respectively.

The results show that gender is relevant at 1% significance level with a positive relationship. A male individual is more likely to be financially included than a female. The outcomes show that gender is a determinant of FI in selected African countries.

Marital status is significant at 10% significance level, and is negatively correlated to FI. This indicates that if an individual is married, it is improbable that he/she will be using official financial facilities compared to an unmarried individual. The outcomes show that marital status is a significant factor in influencing FI.

Proof of residence is significant at 1% level, and is positively correlated to FI. An individual that has a proof of residence is more likely to be financially included. The results show that proof of residence is an important factor in the determination of the FI status of an individual.

Branch access is significant at 1% level, and is negatively linked to FI. The more time an individual takes on a journey to the next bank branch, the less probable s/he to be financially included. The empirical results show that the period of the journey to the next bank branch is an influential factor of FI.

Location influenced FI at 1% level, with a positive association. An individual living in town was more likely to be using a facility with an official financial firm than an individual living in a rural area. The results show that people from the countryside are less likely to have facilities with official financial firms as there may not be infrastructure or suppliers in those areas.

Education influences FI at 1% level, with a positive link. A more educated individual is more likely to be financially included than someone who is less educated. The results show that when a person is educated, s/he is likely to better appreciate the significance of having a formal account than a person who is less educated.

The variable, 'social networks' is significant at 1% level, and is positively linked to FI. An individual who uses social networks has a higher probability of being financially included than someone who does not use it. The results show that a social networks user is more likely to be using a facility with an official financial firm, as this person may be more knowledgeable about the importance and use of financial services.

Financial advice is significant at 1% level, and is positively linked to FI. Someone who has access to financial advice is more likely to be financially included than a person

who does not have access to financial advice. The empirical results demonstrate that financial advice is a vital factor in the distribution of financial services, as the individual will be equipped with the requisite information to make a positive decision.

Salary is significant at 1% level, and is positively linked to FI. There is a higher probability that a person who is formally employed will be financially included than someone who is not. The person in formal employment has access to regular income and it may be a requirement to have a formal account to receive a salary on a monthly/weekly basis.

Income affects FI at 1% level, with a positive link. The higher the individual's income, the greater the probability of being financially included. With a greater income level, the individual is likely to have more disposable income for savings, investment, and so on, increasing the chances of being financially included.

Internet access is significant at 1% level, and is positively correlated to FI. A person who uses internet is more likely to be financially included than someone with no internet. Accessibility to the Internet may imply that the individual may be accessing financial services online and may have access to important information leading to obtaining an account with a formal financial organisation.

Mobile phone use is significant at 1% level, and is positively correlated to FI. There is a higher probability of an individual with a mobile phone being financially included than someone without a mobile phone. A phone can enable the person to use mobile banking services, regardless of distance or any form of inconvenience as he/she can easily access formal financial services.

5.5 THEME III: DETERMINANTS FOR FINANCIAL INCLUSION IN EACH OF THE SELECTED COUNTRIES

Theme III of this study is concerned with the second objective and the two research questions that seek to ascertain the factors influencing FI in each selected African country. As in Theme II, the study sought to determine the effects of financial advice, social media and internet access on FI. As cited in the literature, Bakari, Idi and Ibrahim (2018) posited that country level analysis is necessary because of the inherent differences in the development, demographics, income, and so on.

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The sections below present the results of both the LPM and Probity models for each of the four countries in the study. The analysis for the four countries is based on the result of probity models with robust standard errors in the fourth column of each table presenting the results.

5.5.1 Data estimation and analysis for Kenya

To achieve Objective number 2, to find the factors affecting FI in Kenya, there was a need to estimate a model of equation 12. Equation 12 is restated below:

$FI_K = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$

Where FI_K is the financial inclusion indicator for Kenya.

The suggested model was applied to estimate the relationship between FI and the aforesaid explanatory variables in Kenya. The estimated probit models for Kenya are presented in Table 5.9 below.

Table 5.9:   Linear Probability Model (LPM) and Probit Regression on determinants of FI: Kenya

	LPM	Probit	LPM (robust)	Probit (robust)
Variables	FI	FI	FI	FI
Age	0.0179***	0.0659***	0.0179***	0.0659***
	(0.00146)	(0.00536)	(0.00151)	(0.00600)
Age-squared	-0.000150***	-0.000552***	-0.000150***	-0.000552***
	(1.58e-05)	(5.75e-05)	(1.67e-05)	(6.70e-05)
Gender	0.0235**	0.0634*	0.0235**	0.0634*
	(0.00968)	(0.0340)	(0.00971)	(0.0337)
Marital status	0.0287***	0.101***	0.0287***	0.101***
	(0.0102)	(0.0358)	(0.0103)	(0.0365)
Proof of res	0.0471***	0.151***	0.0471***	0.151***
	(0.0112)	(0.0394)	(0.0112)	(0.0392)
Branch access	-0.0193***	-0.0692***	-0.0193***	-0.0692***
	(0.00588)	(0.0214)	(0.00570)	(0.0221)
Location	0.0505***	0.162***	0.0505***	0.162***

Variables	LPM	Probit	LPM (robust)	Probit (robust)
	FI	FI	FI	FI
	(0.0112)	(0.0388)	(0.0113)	(0.0384)
Education	0.153***	0.506***	0.153***	0.506***
	(0.00663)	(0.0240)	(0.00646)	(0.0237)
Social media	0.128***	0.416***	0.128***	0.416***
	(0.0147)	(0.0501)	(0.0157)	(0.0498)
Financial advice	0.133***	0.514***	0.133***	0.514***
	(0.0181)	(0.0669)	(0.0180)	(0.0694)
Salary	-0.0301**	-0.0717	-0.0301**	-0.0717
	(0.0131)	(0.0460)	(0.0130)	(0.0446)
Income	0.0781***	0.272***	0.0781***	0.272***
	(0.00404)	(0.0147)	(0.00401)	(0.0149)
Internet	0.0832***	0.328***	0.0832***	0.328***
	(0.0169)	(0.0598)	(0.0170)	(0.0585)
Mobile phone	0.140***	0.567***	0.140***	0.567***
	(0.0120)	(0.0470)	(0.0109)	(0.0475)
Constant	-0.571***	-3.728***	-0.571***	-3.728***
	(0.0338)	(0.132)	(0.0318)	(0.137)
Observations	8,665	8,665	8,665	8,665
R-squared	0.308		0.308	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5.9 shows the results of the Probit models for Kenya. The low R-squared of 0.308 reported under the LPM in Table 5.9 was as a result of the study that focused on the human decision whether to use formal financial services or not. This is consistent with Figueiredo *et al.* (2015) who posited that any field that attempts to predict human behaviour typically has R-squared values lower than 50%.

Age is significant at 1% level, with a positive correlation. Therefore, the older the individual is in Kenya, the more likely that the individual is financially included. Age-squared is significant at 1% level, and is negatively associated with FI.

The gender variable is influential at 10% level, with a positive link. This suggests that a male is more likely to be financially included than a woman in Kenya.

Marital status is significant at 5% level, and is positively linked to FI. This suggests that a married individual is more likely to be financially included than a single person. The result is different from the result obtained for selected countries (merged data) in Africa (see Table 5.12), where marital status is significant and has a negative correlation with FI.

Proof of residence is significant at 1% level, and is correlated to FI. This suggests that someone with a proof of residence is more likely to be financially included than those without. This shows how important proof of residence is, so much so that the authorities and suppliers have to consider amending or aligning it to improve the levels of FI.

Branch access is significant at 1% level, and is negatively correlated to FI. This suggests that the greater the time taken to reach the nearest bank branch or formal financial services provider, the less likely the person is to be financially included.

Location is significant at 1%, and is positively correlated to FI. A person from a rural area is less likely to be using the facilities of official financial firms than someone from an urban area. This also suggests that there have to be more financial suppliers or financial services provisions if high FI levels are to be achieved in Kenya.

Education is significant at 1%, and is positively correlated to FI. The more educated, the higher the chance of being financially included.

The variable, 'social networks' is significant at 1%, and is positively correlated with FI. A person who uses social media is more likely to be financially included than an individual who does not.

Financial advice is significantly positive at 1% level. An individual with access to financial advice is more likely to be financially included than someone without.

Salary is insignificant, and is negatively correlated with FI. This suggests that whether someone is formally employed and receiving a regular income or not, it has no significant impact on FI levels in Kenya. A relationship does exist but it is insignificant. The majority of those earning a regular income may be relying more on mobile money transfer services that include the M-PESA which is dominant in Kenya (Mugo &

Kilonzo, 2017: 14). The proxies used did not include mobile money transfer, as other data sets did not have it. The non-inclusion of this proxy may have contributed to the non-significance of the salary variable.

Income is significant at 1% level, with a positive correlation with FI. The findings reveal that the greater the income, the greater the likelihood of using official financial facilities.

Internet access is influential to FI at 1%, and is positively correlated. Someone who uses the Internet is more likely to be financially included than someone with no access.

Mobile phone use is significant at 1%, and is positively correlated to FI. The person who uses a mobile phone is more likely to be financially included than someone who does not.

5.5.2   Data estimation and analysis for the DRC

To achieve Objective number 2, to find the factors affecting FI in the DRC, there was a need to estimate a model of equation 13.

To explore the factors influencing FI in the DRC, the following model of equation was estimated:

$FI_D = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 intern\ et + \mu_5 phone + \Omega_1\ sala + \Omega_2\ Inc + e,$ \qquad [13]

Where FI_D is the financial inclusion indicator for the DRC.

The estimated probit models for the DRC are presented in Table 5.10 below.

Table 5.10:   Linear Probability Model (LPM) and Probit Regression on determinants of FI: DRC

	LPM	Probit	LPM (robust)	Probit (robust)
Variables	FI	FI	FI	FI
Age	0.00444*	0.0213*	0.00444	0.0213*
	(0.00253)	(0.0123)	(0.00322)	(0.0128)
Age-squared	-3.99e-05	-0.000191	-3.99e-05	-0.000191
	(2.88e-05)	(0.000145)	(3.47e-05)	(0.000145)
Gender	0.0635***	0.354***	0.0635***	0.354***
	(0.0172)	(0.0982)	(0.0174)	(0.0964)
Marital status	0.0308*	0.217**	0.0308*	0.217**

	LPM	Probit	LPM (robust)	Probit (robust)
Variables	FI	FI	FI	FI
	(0.0174)	(0.0992)	(0.0173)	(0.0968)
Proof of res	0.0323	0.349*	0.0323*	0.349**
	(0.0248)	(0.183)	(0.0185)	(0.168)
Branch access	-0.0271***	-0.158***	-0.0271***	-0.158***
	(0.00810)	(0.0456)	(0.00829)	(0.0440)
Location	0.0875***	0.677***	0.0875***	0.677***
	(0.0191)	(0.128)	(0.0170)	(0.125)
Education	0.0726***	0.396***	0.0726***	0.396***
	(0.0126)	(0.0702)	(0.0141)	(0.0738)
Social networks	-0.0248	-0.264	-0.0248	-0.264
	(0.0359)	(0.265)	(0.0247)	(0.216)
Financial advice	0.0411	0.853*	0.0411*	0.853*
	(0.0441)	(0.514)	(0.0223)	(0.453)
Salary	0.0370*	0.378**	0.0370**	0.378**
	(0.0209)	(0.148)	(0.0165)	(0.147)
Income	0.00910	0.0455	0.00910	0.0455
	(0.00684)	(0.0381)	(0.00678)	(0.0358)
Internet	0.0147	0.320	0.0147	0.320
	(0.0350)	(0.278)	(0.0216)	(0.232)
Mobile phone	0.101***	0.406***	0.101***	0.406***
	(0.0205)	(0.104)	(0.0247)	(0.103)
Constant	0.558***	-0.386	0.558***	-0.386
	(0.0679)	(0.341)	(0.0843)	(0.345)
Observations	5,000	5,000	5,000	5,000
R-squared	0.107		0.107	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5.10 shows the results of the Probit models for the DRC. The low R-squared of 0.107 reported under the LPM in Table 5.10 was as a result of the study that focused on the human decision whether to use formal financial services or not. This is consistent with Figueiredo *et al.* (2015) who posited that any field that attempts to predict human behaviour typically has R-squared values lower than 50%.

Age is significant at 10% level, with a positive correlation to FI. The older the individual is, the more likely s/he is to be financially included. Age-squared is insignificant and negatively linked to FI.

The gender variable is positively significant at 1% level to FI, implying that a male has greater chances of using official financial services than a woman in the DRC.

Marital status is significant at 5% level, and is positively linked to FI. This shows that a married individual is more likely to be financially included than a single person is. The result is also different from that obtained for selected countries (combined data) in Combined (see Table 5. 8) where marital status had an influential negative link with FI.

Proof of residence is significant at 10% level, and is positively linked to FI. This indicates that someone with a proof of residence is more likely to be financially included than an individual without. This shows how important proof of residence is, to such a degree that the authorities and suppliers have to consider amending or aligning the requirements to improve the levels of FI.

Branch access is significant at 1% level, and is negatively linked to FI. This indicates that the greater the period of a journey to the closest formal financial services provider, the less likely someone is to be financially included.

Location is significant at 1%, and is positively correlated to FI. Those in the urban areas are more likely to be financially included than those in the rural areas. This also suggests that there has to be more finance suppliers or financial services provisions if higher FI levels are to be achieved in the DRC.

Education is significant at 1%, and is positively linked to FI. The more educated the individual is, the bigger the chance of being financially included.

The variable, 'social networks' is not significant, but is negatively correlated with FI. Though the variable is not significant, there is some form of relationship. This implies

that in the DRC, whether the individual uses social media or not, it has no significant influence on the level of FI in the country.

Financial advice is positively significant at 10% level. The individual with access to financial advice is more likely to be financially included than someone without access to financial advice.

Salary is positively significant at 5% level. This suggests that when the individual is formally employed receiving a regular income, s/he is likely to be financially included in the DRC.

Income is not significant, but is positively linked to FI. This indicates that the individual's level of income has no significant impact on his/her FI status. The high levels of informality in the DRC economy may be the leading reason for such a result.

Internet access is not significant, but is positively correlated to FI. Whether the individual uses or does not use internet access has no impact on FI. However, there is a positive relationship though not significant. The result was different from the merged data for selected African countries, which was significant and positive.

Phone use is significant at 1%, and is positively linked to FI. The individual who uses a mobile phone is more likely to be financially included than the individual without.

5.5.3 Data estimation and analysis for South Africa

To achieve Objective number 2, to find factors affecting FI in South Africa, there was a need to estimate the model of equation 14.

To determine factors influencing FI in South Africa, the following model of equation was estimated:

$FI_{SA} = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$ [14]

Where FI_{SA} is the financial inclusion indicator for South Africa.

The estimated probit models for South Africa are presented in Table 5.11 below.

Table 5.11:   Linear Probability Model (LPM) and Probit Regression on determinants of FI: South Africa

Variables	LPM	Probit	LPM (robust)	Probit (robust)
	FI	FI	FI	FI
Age	0.00734***	0.0351***	0.00734***	0.0351***
	(0.00254)	(0.0110)	(0.00281)	(0.0109)
Age-squared	-5.74e-05**	-0.000301**	-5.74e-05*	-0.000301***
	(2.78e-05)	(0.000119)	(3.11e-05)	(0.000116)
Gender	-0.000291	0.0107	-0.000291	0.0107
	(0.0140)	(0.0674)	(0.0139)	(0.0681)
Marital status	-0.0375**	-0.0579	-0.0375**	-0.0579
	(0.0160)	(0.0777)	(0.0157)	(0.0782)
Proof of res	0.106***	0.313***	0.106***	0.313***
	(0.0183)	(0.0729)	(0.0222)	(0.0751)
Branch access	0.0167	0.0594	0.0167	0.0594
	(0.0120)	(0.0524)	(0.0128)	(0.0516)
Location	0.0390**	0.134*	0.0390*	0.134*
	(0.0192)	(0.0793)	(0.0219)	(0.0792)
Education	0.00656	0.195***	0.00656	0.195***
	(0.0147)	(0.0692)	(0.0153)	(0.0716)
Social networks	0.0631***	0.530***	0.0631***	0.530***
	(0.0200)	(0.115)	(0.0168)	(0.114)
Financial advice	-0.0434	0.431***	-0.0434***	0.431***
	(0.0269)	(0.0192)	(0.0141)	(0.320)
Salary	0.113***	0.586***	0.113***	0.586***
	(0.0184)	(0.0992)	(0.0164)	(0.0995)
Income	0.0961***	0.451***	0.0961***	0.451***
	(0.00559)	(0.0294)	(0.00549)	(0.0297)
Internet	0.0524***	0.439***	0.0524***	0.439***
	(0.0196)	(0.108)	(0.0169)	(0.107)
Mobile phone	0.135***	0.366***	0.135***	0.366***
	(0.0210)	(0.0881)	(0.0240)	(0.0860)

	LPM	Probit	LPM (robust)	Probit (robust)
Variables	**FI**	**FI**	**FI**	**FI**
Constant	-0.0897	-3.082***	-0.0897	-3.082***
	(0.0626)	(0.293)	(0.0674)	(0.296)
Observations	5,000	5,000	5,000	5,000
R-squared	0.341		0.341	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5.11 shows the results of the Probit models for South Africa. The low R-squared of 0.341 reported in the LPM in Table 5.11 was as a result of the current study that focused on the human decision whether to use formal financial services or not. This is consistent with Figueiredo *et al.* (2015) who posited that any field that attempts to predict human behaviour typically has R-squared values lower than 50%.

Age is significant at 1% level, and with a positive link to FI. The older someone is in RSA, the more likely the individual is financially included. Age-squared is significant at 5% and is negatively linked to FI.

The gender variable is not significant, but is positively linked to FI. Whether the person is a male or female has no influence on the level of FI in RSA. This is in contradiction to the results found for selected African countries where gender was significant.

Marital status is not significant, but is negatively linked to FI. This implies that a person's marital status has no notable influence on FI in RSA. The result is different from that obtained for selected countries (combined data) in Africa (see Table 5.8), where marital status was influential to FI with a negative link.

Proof of residence is significant at 1% level, and is positively linked to FI. This suggests that someone with a proof of residence is more likely to be financially included than someone without.

Branch access is not significant, but is positively linked to FI. This suggests that the period of a journey to the closest formal financial services provider has no significant impact on FI levels in South Africa.

Location is significant at 10%, and is positively linked to FI. Those from the countryside are less likely to be using official financial services than those in towns. This also

suggests that there have to be more financial suppliers or financial services provisions if high FI levels are to be achieved in South Africa.

Education is significant at 1%, and is positively linked to FI. The higher someone is educated, the bigger the chance of being financially included in RSA.

The variable, 'social networks' is significant at 1%, and is positively linked to FI. A person who uses social media is more likely to be financially included than an individual who does not.

Financial advice is significant at 1% level, and is positively linked to FI. Someone with access to financial advice is more likely to be financially included than someone without.

Salary is significant at 1% level, and is positively linked to FI. This implies that an individual who is formally employed and receiving a regular income is more likely to be financially included than someone without a regular income.

Income is significant at 1% level, with a positive link to FI. This shows that the greater the individual's income, the greater the chance of being financially included.

Internet access is influential at 1% level, with a positive link to FI. Someone who uses the Internet is more likely to be financially included than someone who does not.

Phone use is significant at 1%, and is positively linked to FI. The person who uses a mobile phone is more likely to be financially included than someone who does not.

5.5.4   Data estimation and analysis for Eswatini

To achieve Objective number 2, to find the factors affecting FI in Eswatini, there was a need to estimate the model of equation 15.

To find the factors influencing FI in Eswatini, the following model of equation was estimated:

$$FI_{SW} = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \mu_2 media + \alpha_3 Advice + \mu_4 internet + \mu_5 phone + \Omega_1 sala + \Omega_2 Inc + e, \qquad [15]$$

Where FI_{SW} is the financial inclusion indicator for Eswatini.

The estimated probit models for Eswatini are presented in Table 5.12 below.

Table 5.12:   Linear Probability Model (LPM) and Probit Regression and determinants of FI: Eswatini

Variables	LPM	Probit	LPM (robust)	Probit (robust)
	FI	FI	FI	FI
Age	0.0159***	0.0697***	0.0159***	0.0697***
	(0.00242)	(0.0105)	(0.00238)	(0.0103)
Age-squared	-0.000120***	-0.000511***	-0.000120***	-0.000511***
	(2.54e-05)	(0.000108)	(2.51e-05)	(0.000107)
Gender	0.0956***	0.366***	0.0956***	0.366***
	(0.0145)	(0.0616)	(0.0147)	(0.0616)
Marital status	0.00843	0.0304	0.00843	0.0304
	(0.0147)	(0.0634)	(0.0144)	(0.0623)
Proof of res	0.0355	0.267**	0.0355*	0.267**
	(0.0246)	(0.120)	(0.0210)	(0.109)
Branch access	-0.118***	-0.408***	-0.118***	-0.408***
	(0.00579)	(0.0239)	(0.00655)	(0.0252)
Location	0.128***	0.440***	0.128***	0.440***
	(0.0159)	(0.0675)	(0.0160)	(0.0641)
Education	0.0730***	0.325***	0.0730***	0.325***
	(0.00921)	(0.0411)	(0.00884)	(0.0399)
Social network	0.126***	0.567***	0.126***	0.567***
	(0.0206)	(0.0922)	(0.0197)	(0.0885)
Financial advice	0.0346**	0.131**	0.0346**	0.131**
	(0.0148)	(0.0626)	(0.0148)	(0.0622)
Salary	0.226***	0.817***	0.226***	0.817***
	(0.0186)	(0.0774)	(0.0198)	(0.0775)
Income	0.0603***	0.267***	0.0603***	0.267***
	(0.00535)	(0.0242)	(0.00552)	(0.0268)
Internet	0.0317	0.224**	0.0317	0.224**
	(0.0231)	(0.107)	(0.0215)	(0.103)
Mobile phone	0.146***	0.680***	0.146***	0.680***
	(0.0246)	(0.120)	(0.0224)	(0.127)

Constant	-0.570***	-4.318***	-0.570***	-4.318***
	(0.0570)	(0.270)	(0.0526)	(0.273)
Observations	3,440	3,440	3,440	3,440
R-squared	0.452		0.452	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5.12 shows the results of the probit models for Eswatini. The low R-squared of 0.452 reported in the LPM in Table 5.12 was as a result of the study that focused on the human decision whether to use formal financial services or not. This is consistent with Figueiredo *et al.* (2015) who posited that any field that attempts to predict human behaviour typically has R-squared values lower than 50%.

Age is significant at 1% level, with a positive link to FI. The older one is in Eswatini, the more likely the individual is to be financially included. Age-squared is influential at 1% level with a negative link to FI.

Gender variable is significant at 1% level with a positive link to FI. This shows that a male is more likely to be financially included than a woman in Eswatini.

Marital status is not significant but positively linked to FI. This implies that whether one is married or not, it has no influence on FI levels in Eswatini. The result was different from that obtained for selected countries (combined data) in Africa (see Table 5.8) where marital status was significant with a negative link to FI.

Proof of residence is significant at 5% level and positively linked to FI. This suggests that one with a proof of residence is more likely to be financially included than those without. This shows how important proof of residence is, so much so, that the authorities and suppliers have to consider amending or aligning requirements to improve the levels of FI.

Branch access is significant at 1% level, and is negatively linked to FI. This suggests that the longer the period of a journey to the closest formal financial services provider, the less likely someone is to be financially included.

Location is significant at 1%, and is positively linked to FI. Individuals from the rurual areas were less likely to be using formal financial services than those from towns. This

also suggests that there have to be more financial suppliers or financial services provisions if higher FI levels are to be achieved in Kenya.

Education is significant at 1%, and is positively linked to FI. The higher someone is educated, the higher the chance of being financially included.

The variable, 'social networks' is significant at 1%, and is positively linked to FI. Someone who uses social media is more likely to be financially included than an individual who does not.

Financial advice is significant at 5% level, and is positively linked to FI. A person with access to financial advice is more likely to be financially included than someone without.

Salary is significant at 1% level, and is positively linked to FI. This means that a person receiving a regular income or who is formally employed, is more likely to be financially included.

Income is significant at 1% level, with a positive link to FI. This shows that the higher the earnings, the greater the chances of using official financial services.

Internet access is influential at 5%, and is positively linked to FI. Someone who uses the Internet is more likely to be financially included than someone who does not.

Mobile phone use is significant at 1%, and is positively linked to FI. The person who uses a mobile phone is more likely to be financially included than someone who does not use a mobile phone.

5.6   CONCLUSION

The current study concludes that in the selected African countries, FI is determined by age, gender, marital status, proof of residence, branch access, location, education, social networks, financial advice, internet access, mobile phone, salary and income. These findings were in line with the theoretical predictions. However, there were slight differences in the results of the individual countries. The following differences were found: 1) In Kenya, salary was non-significant; 2) In the DRC, age-squared, media, income and the Internet were not significant; 3) In South Africa, gender, bank access and marital status were not significant; and 4) In Eswatini, marital status was non-significant. The results of the contribution of internet access, social media and financial

advice to FI were similar under both the LPM and Probit Models in all five models. Universal access to formal financial services is feasible in Africa. If effectively utilised, the new technologies, social media, financial advice, internet, transformative business models and ambitious reforms, among other strategies, will improve FI levels.

Three categories of pre-valuation diagnostics, specifically, the descriptive indicators, relationship examination and analysis of variance were done using the Stata Software Package. Descriptive data entailed compiling the information into four categories, namely, frequency, percentages, mean and standard deviation. Having revealed the frequency, mean and standard deviation, the research discovered the trend as well as the type of the link among all the variables using Pearson's Correlation.

Testing for differences in the study variables across countries was done using the analysis of variance (ANOVA) examination to establish if there were notable variances among the four selected countries' data sets or not. The test was mainly done to address Theme I that focuses on testing for differences in the study variables across countries. The next chapter discusses the results presented in this chapter.

CHAPTER 6:
DISCUSSION OF RESULTS

6.1 INTRODUCTION

The prior chapter reported and interpreted the outcomes obtained from the selected econometric estimation techniques consistent with the purpose of the study. The major aim of the current research was to explore the determinants of FI in selected African countries with more emphasis directed towards social networks. The chapter begins by discussing the results addressing Theme I, which ascertain the differences to the study variables across countries. Under Theme II, the results for the determinants of FI in Africa are discussed. Determinants of FI in each of the selected countries are discussed under Theme III.

This section includes a comprehensive discussion of the outcomes shown in chapter five. Consistent with Sekaran and Bougie (2010), this section of the thesis presents the research questions and tested hypotheses drawing conclusions in selected African countries. The discussion explains how the answers fit relative to the existing body of knowledge about FI (Brink, 1996).

6.2 THEME 1: DIFFERENCES IN THE STUDY VARIABLES ACROSS COUNTRIES

Comparisons were necessary in the current research, since the surveys that were used came from different countries. The surveys were done in rural and urban parts of the selected African countries. The selected African countries are South Africa, the DRC, Eswatini and Kenya. The four countries differ in many aspects that include infrastructural availability, social conduct in terms of views and tradition. The dissimilarities perhaps influence the individuals' abilities and FI in these countries.

The Finscope surveys used in the current study showed the variances in banking services supply and socioeconomic features across the selected countries. Noteworthy, differences are present in the four countries given their economic development, governmental, social and financial differences consistent with the study results.

Significant differences in FI were present across the four countries. South Africa had the highest level of FI (70%) among individuals. The results show support for the hypothesis grounded on variances in individuals' FI in the four countries. The study results are consistent with Demirguc-Kunt and Detragiache (2005), Demirguc-Kunt and Levine (2001) on disparities in FI across countries. Similarly, Demetriades and Andrianova (2004) found that the level of FI differed by a country's level of economic growth. This also demonstrates that residents of countries with higher income have more prospects of accessing formal financial products in comparison to lower income countries. This is in view of the assertion that South Africa is an anomaly among developing countries (World Bank, 2018). South Africa is regarded as a developed country with good infrastructure but with huge social and economic problems.

The samples used included all age groups from 18 years to about 95 years in some cases. Therefore, significant differences were present in age in the four countries. The results show dissimilar distributions in age for respondents from the countries investigated. The results provide support for the hypothesis based on differences in age of people accessing financial services among the four countries. The study results are consistent with Jukan and Softić (2016) who asserted that the young generation might take time to secure formal employment. However, this also depends with the nature of employment opportunities in a country.

The samples used had unequal and different weights on the gender variable. There were significant differences in gender in the four countries. The results reveal variances in access to financial services based on gender in the selected economies. The results give support to the hypothesis grounded on variances in gender. The findings are in line with that of Aterido *et al.* (2013) who found varying levels of women's access to formal financial services across Sub-Saharan Africa.

There were significant differences in marital status in the four countries. The results show the differences in financial services access based on marital status in the selected African countries. The results also provide support for the hypothesis centred on marital status. The study outcomes are in line with Ashraf *et al.* (2006) who observed differences in access to financial services based on marital status in developing countries.

The documents required and stringent requirements on the part of the banks differed from one country to another. There were significant differences in proof of residence in the four countries. The results show the differences in the nature of documentation required or available for opening or accessing financial services. The results are in support of the hypothesis based on proof of residence. The study results are consistent with Johnson and Nino-Zarazua (2011) who found variations in proof of residence required by banks in Kenya and Uganda.

Distance from formal financial services points or premises vary from country to country and place to place. There were significant differences in branch access in the four countries. The results reveal variations in the time taken to the nearest formal financial services supplier across the countries. The results give support for the hypothesis based on branch access. The study outcomes are in line with Anson *et al.* (2013) who observed differences in distances to the nearest formal services providers.

In Africa, a significant population dwells in the rural areas and proportions may differ from country to country. There were significant differences in location in the four countries. The results reveal differences in accessing financial services by those in urban and rural areas. In some countries, infrastructure is more developed causing variations in distribution of financial services. The findings give support for the hypothesis grounded on differences in location. The results of the study are consistent with that of Babu (2015) who found differences in the provision of financial services in different districts in India.

There were significant differences in education in the four countries. The results reveal differences in financial services access based on individual educational levels. The results provide support for the hypothesis based on education in the selected African countries. The study results are consistent with Divya (2014) who found variations in education levels of individuals from different countries.

Access to or use of social networks differs from place to place, and in some cases, was determined by age. There were significant differences in social network use across the four countries. The results show that social network participation varies from individual to individual across countries. The results are in support of the hypothesis based on differences in social media use in the selected African countries. The result was in line with Chen (2010) who found differences in the use of Twitter to

connect with others. In that regard, Chang and Zhu (2011) found differences in terms of social networking adoption in China.

Advice on financial matters is determined by among other things the desire to make informed decisions. Significant differences were present in financial advice in the four countries. The results reveal the differences in access to financial products for individual financial decisions in the four nations. The results show support for the hypothesis centred on variances in financial advice. The study outcomes are in line with Casaló *et al.* (2011) who observed differences in following advice on online travel communities. Though the advice was not on financial matters, it demonstrates that advice influences one's decision-making.

The nature of jobs available for the economically productive citizens varied from one economy to the other. There were significant differences in salary in the four countries. The results reveal the differences in the nature of jobs for adults across the selected African countries. A job can be formal or informal and that may influence the distribution of financial products. The results also back the hypothesis based on differences in salary. The study results are consistent with Honohan and King (2009) who found variations in the nature of jobs across countries.

A number of factors influence individuals' income ranging from individual circumstances to level of economic development. There were significant differences in income for the four countries. This shows that income varies from individuals across countries. The results support the hypothesis based on differences in individual income. The study results are consistent with Chithra and Selvam (2013) who found variations in income of samples from different states in India. Karian and Morduch (2009) assert that there are differences in income across the world.

ICT infrastructure is crucial in delivery of financial products and services. There were significant differences in internet access in four countries. The result reveals differences in access and use of internet facilities, which also depends on infrastructure availability. The outcome gives support for the hypothesis on variances in internet access. The study results are consistent with Aliyu and Tasmin (2012) who found variations in internet use. In this regard, Bakari *et al.* (2018) found disparities in internet access across ten African countries.

Communication structures are vital for convenience and costs in financial services delivery. There were significant differences in mobile phone use in the four countries. The results reveal differences in possession and use of mobile phones across the selected African countries. The outcome gives support for the hypothesis on variances in mobile phone use. The study results are consistent with Andrianivo and Kpodar (2012) who found differences in the use of mobile phones in the samples used.

Though no empirical evidence exists on differences in FI and other independent variables of the study, the outcomes show the necessity for wider and accurate consideration of the complex structure of societies. Moreover, the significant and consistent variances indicate that future studies ought to acknowledge that individuals across countries may possess the same characteristics but their capabilities to access and use financial services differ. The capabilities differ particularly when evaluated separately. The noteworthy outcomes support the participation in the financial system regardless of the variances in individual characteristics.

The study results show variances in variables influencing FI. The results show an uneven distribution of formal banking services in the selected countries. This also shows the importance of utilisation of individual capabilities. For development, particularly, in the underprivileged African nations such as Eswatini, banking needs ought to be met. This is in view of improving supply-side strategies and reinforcing demand-side factors inhibiting FI. Therefore, the initiatives by policy-makers and financial institutions should focus on the delivery of appropriate products and services. The products and services must be easily comprehensible and culturally suitable to those who live in those countries or communities. The implementation ought to take place regardless of the challenges financial suppliers may experience in providing those segments.

6.3 THEME II: DETERMINANTS OF FINANCIAL INCLUSION IN SELECTED AFRICAN COUNTRIES

This section discusses results presented in chapter five that address Theme II. In the current study, the hypothesised model that shows the contribution of age, age^2, education, education, marital status, bank branch accessibility, location, internet access, salary, income, proof of residence, financial advice, gender and mobile phone to FI shows disparities in the results obtained in Chapter 5. Based on the FI model and

research outcomes, this segment gives meaning to the hypotheses tested for the selected African countries. Presented in this segment is a comparison of the findings to extant literature and theoretical viewpoints.

This study sought to examine how age influenced FI in designated African countries. The results indicated a significant positive link between age and FI as projected (see Table 4.3). The hypothesis H031 that age has no influence on FI was rejected. The results show that age positively affects FI in selected African countries. The results indicated a strong negative correlation between age-squared and FI, which shows that age, has a non-linear relationship with FI. This was in line with Fitzpatrick and Kingston (2008) who found a non-linearity in the relationship between Age and FI. The barriers that old people encounter include knowledge gap created on current systems of money management, dislike of online banking methods, less older people using credit card/s, increased preference of using cash, mental health and physical problems as well as scepticism of assistance on financial matters. Policy-makers and financial institutions can take the initiative to design services designed to assist older people in dealing with complex financial issues, financial aptitude and cybercrime. Services such as financial advice, guidance and information supply through different electronic platforms.

Between the age of 18 and 23, there may be lower uptake of financial services as the group is mainly composed of college going citizens, higher unemployment and lower financial independence levels. From 24 onwards, that population segment begins to work or become economically active and beginning to be financially independent thus the probability of financial services use increases. The findings are consistent with Zins and Weill (2016), Clamara *et al.* (2014) and Altunbas *et al.* (2010) who established that age was influential to FI in different countries. The findings of the study support the Life-Cycle Theory (LCT) that acknowledges the differences in consumption requirements and income at various stages in one's life.

This study sought to investigate how gender influenced FI. The results indicated a strong positive association between gender and FI as projected. The alternative hypothesis that gender contributed to FI among adults in selected African countries was supported. Males were more probable to be financially included than females. The difference could be emanating from an imbalance in job opportunities in the

different countries. As more males occupy the formal job space where bank accounts are required, the uptake is more likely to be that of the female counterpart.

The results resonates with Demirguc-Kunt *et al.* (2013), who found that underprivileged women were 28% less probable to be financially included than poor men. The solution lies on the existence of opportunities to deliver a wide-range of official financial products for women and the poor. Many studies have found that more formal financial facilities still have to reach the women (Demirguc-Kunt *et al.*, 2017; Koch *et al.*, 2014). As reported by Global Findex (2019), 57% of women on the globe were financially included compared to 64% of man. Gender gap has continued in spite of more people having accessibility to official financial facilities particularly the impoverished. The imbalance in some countries may be traced to the member owned institutions (MOI) that primarily serve men with inadequate collateral, no proof of identity, mobility limitations and low financial literacy levels. Focus should be put as well on agricultural activities dominated by men where women do not have the collateral requirements.

The prevailing formal financial system structures continue to discriminate women for the same reasons. More attention to economic women empowerment and financial needs is required to improve gender equality and FI in selected African countries (Shihadeh, 2018; Allen *et al.*, 2012; Johnson & Nino-Zarazua, 2011). Other measures may include collecting gender-disaggregated data by all stakeholders for development of tailored financial services and products. Training of financial institutions' personnel for provision of expertise and financial education to women will also go a long way into improving women's FI levels. Policy-makers and banks can advocate for the relaxation of KYC as well as AML (anti money laundering) by developing guidelines promoting different collateral registries. Such an arrangement can become a building block for fintech firms that can create new instruments to cater for women's financial needs.

This study sought to investigate how marital status influenced FI. The results indicated a negative link between marital status and FI. The alternative hypothesis that marital status influenced FI among adults in selected African countries was supported. A financial decision making process made by a single person may differ from that of a married person. Results of the current study show that the married were more likely to be using formal financial products than the single.

The result is in line with findings by Yao and Hanna (2004) who stated that never married males (70%) were likely to take the greatest risk, after that married males (66%), next were divorced men (61%), married females (55%), never married women (50%), divorced females (45%), surviving husband (38%) and surviving wife (27%). The process of decision-making may differ in the case of a married individual and an unmarried one. In the selected African countries model, married (49.6%) had a lower rate than the unmarried (50.4%) did. The relatively less usage of official financial facilities by the married may escalate their exposure to income shocks and decrease the ability to save and invest as couples. The policies designed, services and products offered by financial organisations must consider the differences that exist in marital status to improve FI levels.

This study sought to investigate how proof of residence influenced FI. The outcomes showed a significant positive association between proof of residence and FI as projected. Documents such as water bills, local council bills, leases, and title deeds among others are widely accepted by banks. Those formally employed can use letters from the employer indicating their residential address. Without the required documentation, a person is incapable of opening a formal account. The alternative hypothesis proof of residence contributed to FI among individuals in selected African countries was supported.

One must have some form of proof of residence where s/he is staying to open an official financial account. The findings resemble that of other studies done around the globe (Tuesta *et al.*, 2015; Martinez *et al.*, 2013). According to the Bank of International Settlement, the reasons for this requirement include know your customer (KYC) and dealing with money laundering issues (Lessambo, 2015). As many people fail to open accounts because of lack of the required documents, financial institutions can consider other forms of verification such as witnesses to testify of the background of the prospective customer.

This study investigated how time taken to the nearest formal financial services point influenced FI. The outcomes showed a strong negative relationship between branch access and FI as projected. Physical financial facilities, such as bank branch or agent, still influence an individual's financial decision-making. The cost of travel and lack of trust are other significant contributors to the non-use of formal financial services. "Seeing is believing" makes individuals more confident when they deal with the bank

which is in a physical structure. The alternative hypothesis that branch access influenced FI among adults in selected African countries was supported.

The results resonate with Osei-Assibey (2009:214) who argues that branch opening is mainly driven by market size, physical infrastructure, level of technological advancement and security concerns. Technology could also reduce the costs or problems associated with distance but the challenge in many African countries is the low level of literacy. The other problem could be poor infrastructure in many areas in African countries. To enhance FI levels, digitilisation may go a long way into solving problems of inconvenience and related transaction costs (Omarini, 2017, 2011). Technology can be embraced by banks in providing enhanced customer services for convenience to customers and time saving. Osei-Assibey also argues that the will or ability of one to open an account is not sufficient. There must be financial institutions available because the longer the distance to a bank, the more the transaction costs are incurred. The distance from and the costs of accessing services have the potential to discourage owning a bank account.

Living in the rural or in the urban areas has a huge bearing on an individual's access to formal financial services in the selected African countries. This study investigated how location influenced FI in selected African countries. The outcomes indicated a strong positive link between location and FI. The alternative hypothesis that location influenced FI among individuals in selected African countries was consequently supported. The results reveal that those from rural places are less probable to be financially included. The non-availability of facilities in the rural areas reduces the chances of individuals to be financially included. The lack of infrastructure results in many using local informal facilities for saving and borrowing purposes.

The problem of lower FI levels in remote areas can be solved by bank agencies' use in rural business centres. The outcomes of the current study are consistent with Hirschland *et al.* (2008) who argue that the rural are generally poor, and, the poor are mostly rural. The rural population has inferior accessibility to formal financial facilities than those in towns and cities. Financial institutions can collaborate (engage) with member owned institutions (MOI) that is credit unions, cooperatives and savings clubs to use banks' platforms to access official financial facilities. The usage of banks' platforms is safer and governments are set to benefit from transactions and savings done through formal financial institutions. The created platforms may also lead to more

innovative financial products coming on board. This arrangement will enable banks to reach the most sparsely populated rural areas and the clients to enjoy the tailor made financial products and facilities. For the policy-maker, this is one way to alleviate the high poverty levels associated with rural areas as appropriate financial services are delivered. The microfinance bank model may also work as a solution for these communities (Chao-Béroff, 2007). Therefore, it is vital for the policy-makers and suppliers of financial services to ensure that distance does not affect financial services delivery to the entire population. Promoting technology-based transactions may go a long way in ensuring universal accessibility of official financial facilities because those in the remote areas will not be deterred by distance.

Education is important for reading and writing purposes as well as appreciating financial services' needs. This study examined how individual education influenced FI. The results indicated a strong positive link between education and FI. The alternative hypothesis that education influenced FI among adults in selected African countries was supported. Higher levels of education increase the likelihood of an individual using formal financial services.

The role of education in promoting FI is critical in the selected African countries. The outcomes of the present research h are consistent with a number of empirical studies done (Atkinson & Messy, 2013; Atkinson, 2008). The more superior one's level of education is, the better the appreciation of financial matters and financial education is easier to impact on such a person. Education is a vital element for promoting FI, consumer protection and eventually financial stability. The academic education has to be complemented by financial education however, the former fosters the latter. Financial literacy programmes at national level are important to achieve FI in Africa.

As well, this study sought to investigate how the nature of jobs influenced FI. Earning a monthly salary, weekly wage or periodical income from a job increases the likelihood of an individual's use of formal financial services. The results indicated a strong positive link between salary and FI. The alternative hypothesis that salary influenced FI among adults in selected African countries was supported. In countries such as the DRC that have a larger population that is informally employed, lower FI levels prevail. The youth are the worst affected, as they may still be at school or looking for stable job opportunities which has an influence on their FI status.

The outcomes concur with the findings of Kumar (2013) and Kumbhakar and Mavrotas (2008) who found that a person who is formally employed is more likely to be using official financial facilities. In many evolving or developed economies, a formal job means earning income periodically. Such a scenario is associated with high levels of formal financial services use. There is also an argument of reverse causation, where high FI levels improve job creation in an economy. Several empirical studies and traditional economic literature have focused on these relationships, and there is a general view that the linkages are real. In many developing countries, the formal employment level is low, and for FI levels to be improved, formalisation is key.

Millions of families generate jobs for themselves by becoming self-employed micro-entrepreneurs because they have no alternative. If high levels of informal employment prevail, the use of official financial facilities becomes low. In reference to youths, Justin *et al.* (2016:4) argue that accessing formal financial services may be difficult as it is not easy for a young person in the labour market today. The need to create jobs or formalise the economy must assist in policy formulation and programme interventions that are designed specifically for youth financial products that will stimulate the productive activities associated with job creation.

Individuals in the lower income brackets are less likely to be financially included because of a low disposable income. The study investigated how income influenced FI in selected African economies. The results indicated a strong positive link between income and FI. The alternative hypothesis that income contributed to FI among individuals in selected African countries was upheld. The unemployed or those who earn little or nothing at all in a month are less likely to be financially included.

The outcomes are in line with some studies that found income as the greatest influential economic determinant of demand for formal transactions (Beck & De la Torre, 2006; Schreigner & Nagarajan, 1998). There is consensus that trade and industry expansion and the related surge in per capita income raise the necessity for more sophisticated facilities. The results support the Harrod–Domar Model that indicates that trade and industry expansion is centred on upsurge of savings and investment. One saves when having surplus income so the more one earns the more likely s/he is financially included.

If income leads to greater FI or financial expansion and ultimately economic progression, what will become of those with less or no income? Some scholars are of the opinion that financial sector depth directly contributes to the lessening of poverty by supplying or improving the poor's ability access to official financial facilities (Park & Mercado, 2015; Amidžić, Massara & Mialou, 2014). Many economists believe that financial industry expansion and depth has a significant influence on the poor. The main reason being information asymmetry as there are credit constraints in funding the projects of the poor because they cannot fund their projects and have no collateral (Banerjee & Newman 1993; Galor & Zeira, 1993; Aghion & Bolton, 1997). The restrictions limit the poor from taking advantage of investment prospects that arise. The situation can also be worsened by the fact that the poor will be financially excluded (no accounts with formal financial intermediaries) and those institutions with a capacity to extend credit will be having no history of the borrower.

High disparity levels are also a cause for concern in fighting poverty, and FI should be a policy priority (Kanbur & Lustig, 1999). Economic evolution and wealth sharing are interrelated in a number of channels, and the success of economic growth translating to the amelioration of poverty is determined by the early stage of inequality (Lustig *et al.*, 2002). It is also vital for the government to introduce some strategies in the short term to assist the public, as it may take long for the marginalised to enjoy the benefits of a strategy or measure.

The use of mobile telephones increases the accessibility to financial services and products. With mobile phones, those that see and believe are capable of saving and borrowing and track their balances. This study investigated how mobile phone use influenced FI. The outcomes showed a strong positive link between mobile phone use and FI. The alternative hypothesis that mobile phone use influenced FI among adults in selected African nations was upheld. Social networks and internet access to achieve phenomenal FI levels can complement the use of mobile phones. The correlation results in Table 4.2 show positive links among the variables.

The current study results reveal that mobile phone use is an important factor in influencing FI levels in African countries. The results are in line with that of Ragui (2017) who researched on how mobile banking services can enhance FI levels of women in Kenya. Since mobile banking involves the use of mobile devices, greater use of the gadgets improves FI levels in African countries. The findings of significance

of mobile phones use in determining FI levels becomes a building block for digital financial services accessed through these gadgets.

The use of phones may result in strategic designs of financial products that attract women entrepreneurs. Studies have also shown that women consider mobile banking as a convenient and safer way of banking (Seng & Lay, 2018; Ragui, 2017) in comparison with traditional physical banking. The demand for such products shows the need for financial services but inappropriate ones may be available. On the introduction of digital credit in Kenya, women entrepreneurs were not keen to use the credit facility and banks were cautious on offering such products because of the risk perceived. Therefore, banks have to collaborate with phone services providers to come up with tailor made products. However, the financial institutions could still be sceptical in offering such products, for example, credit facilities with no collateral.

There is need for bank-mobile phone partnerships for designing tailor made products for the financially excluded population and the under included. There is need for initiatives to enable new partnerships that make it easy for banks to integrate with strategic players. Embracing of new FinTech partnerships by banks will significantly enhance FI levels. Banks may be strong in the provision of core products, established financial processes and payment rails but weak in ICT applications. For fast-paced technologies, data analysis, artificial intelligence and customer sentiment analysis, the more IT-focused FinTech players outpace banks. More appropriate financial services and products may be developed if such partnerships are fostered to enhance FI levels.

This study investigated how internet access influenced FI in the selected African countries. The outcomes showed that internet had a significant positive correlation with FI (p<.001). The alternative hypothesis that internet access influenced FI among adults in the four countries was upheld.

Internet plays an essential function in the world today. Online official financial facilities break the physical distance as one can access services from anywhere as long as there is internet connection. It brings convenience for there is no need to visit a bank branch for some online transactions and payments. Information of different financial products is available online and one must be in a position to open an account online. The use of ICT brings the latest marketing strategies that are employable to marketing

of financial services. Content marketing is an approach that can be used for distribution of content.

The evidence calls for policy-makers to foster the development of internet infrastructure to enhance the FI levels of individuals in different countries. Though Chen *et al.* (2018) examined the association between internet use and access to outside finance companies, the study unit was not individuals, focus was on one highly developed country of China. Also Chen *et al.* used a dependent variable that was limited to formal/informal borrowing yet the scope is broader. Bruhn and Love (2014) acknowledged that internet access alleviates information asymmetry between banks and potential borrowers. The existing studies were done in more advanced economies such as Mexico. Other conclusions were based on China and some European countries. Lenka and Barik (2018) examined the contribution of net usage to FI in South Asian Association for Regional Cooperation (SAARC) nations, however, limited proxies on the dependent variable were used in the study.

The study results supported a model postulated by Chen *et al.* (2018). The model considered the effect of productive setups of people via the internet on individuals' access to finance and social welfare. They developed their model premised on the Principal-Agent Model. The model developed in the study predicts that internet access has an outstanding progressive impact on finance access. The study also suggested that internet access shrinks the difference between the real and ideal social gross investment level. However, the model does not consider the influence of internet use on FI levels of individuals. Based on the results of the current study, it can convincingly be concluded that internet access can positively influence FI.

It is therefore imperative for governments to ensure internet infrastructure is in place across their countries. One in the remote areas has to access the bank online so as not to be disadvantaged because of the absence of branches in the area. The use of internet reduces costs both for the supply and demand sides because there is no human interaction and travelling. The banks have to be innovative to enhance their system infrastructures and embrace cheaper internet alternatives. The benefit of internet platforms is the minimal costs involved, providing easier and broader accessibility to target audience. The other advantage is that with the advent of internet technology, people are able to access such platforms from anywhere, making it necessary to employ some effective marketing strategies.

This study sought to examine how financial advice influenced FI. The outcomes showed a strong positive association between financial advice and FI (p<.001). The alternative hypothesis that financial advice influenced FI was consequently supported.

The results reveal that one who receives financial advice is more probable to be using official financial facilities. A financial advisor in this case was an expert or consultant whose advice is likely to cause one to make an informed decision. Ceteris paribus, financial advice may encourage one to use formal financial services and reach his/her financial goals. Professional financial planners can assist in organising finances, savings, investments and projects of an individual. The establishment of such professional bodies will advance FI in many countries in Africa.

Financial advice enhances investment management but the current study shows that it can be used to enhance uptake of formal financial services. This was in support of Trans-theoretical Model (TTM), which focuses on the decision-making and intentional change of an individual. Other researchers applied TTM in credit counselling situation to advance a measuring method to assist users' transformation behaviours that eradicate detrimental credit card arrears (Xiao, Newman *et al.*, 2004). TTM was used in low-income consumers' financial education programmes and there are some educational strategies that fall under the TTM framework that were developed (Shockey & Seiling, 2004). In addition, TTM was applied in provision of advice for women to be astute investors (Loibl & Hira, 2007).

The promotion of financial advisors or planners is crucial, as many people are sceptical about their relevance and cost. Financial planners and investment advisors can work wonders for one's financial life. Furthermore, financial advisors look beyond just banking and investments. In this dynamic and complex environment, it has become more important to consult experienced and qualified guidance in securing a successful financial future. Many developed economies have these professional bodies in place but they are not common in majority of African countries. It becomes imperative for the governments to make it easier for all citizens to access and benefit from the right advisor for their individual objectives and needs. The professional financial advisor also plays the following roles: tailor a plan to assist in achieving one's short and long-term goals; protect one's assets; tax advice; investment strategy formulation and retirement plan. Studies have also shown that financial advice also improves physical health, increased personal happiness and ultimately standard of living.

Many researchers, financial institutions and governments have overlooked the use of financial advice to improve FI. The current study has found that those who have access to financial advice are more probable to be financially included. The extant literature has not addressed the influence of financial advice on FI due to shortage of appropriate information.

Though there may not be support in extant literature on the contribution of financial advice to FI, financial advice enhances peace of mind and financial confidence (Montmarquette & Vietnnot-Briot, 2012). Financial advice inspires one to make a desirable financial decision to improve one's standard of living (Xiao *et al.*, 2004; Hilgert *et al.*, 2003). The current study results support the Theory of Planned Behaviour (TPB) that emanated from the concept of rational deed (Fishbein & Ajzen, 1975). The TPB is more appropriate when actual control and probability of success of behaviour performance are suboptimal. The TPB's main input is the notion of perceived behavioural control that can be described as somebody's opinion of the challenge or simplicity of acting in a particular way (Ajzen, 1987). Based on the findings of the current study, it can justifiably be concluded that financial advice has a positive influence on the uptake of formal financial services.

In sum, FI in selected African countries (combined data) is determined by age, gender, marital status, proof of residence, branch access, location, education, social networks, advice, internet access, mobile phone, salary and income. All variables considered in the selected African countries (combined) model were significant. In view of the results, to enhance FI, there is need to: 1) Expand access points; 2) Create a conducive regulatory environment; and 3) Improve financial capability. There is also need to drive scale and viability through government programmes by reaching women and rural dwellers. Attention can be on encouraging the use of formal financial services through awareness programmes or social media platforms. These initiatives encourage account use and digitalise payments, thereby creating accessibility to credit, savings and insurance services.

The second research question of Theme II, that seeks to find the effects of social networks to FI, is provided for in Section 6.3.1 below.

6.3.1 Social network and financial inclusion

The current study investigated how social networks use influenced FI in the selected African nations. The results indicated a strong positive link between social media and FI (p<.001). The alternative hypothesis that social media influenced FI among individuals in the four countries was upheld.

The significant results show that social networks use can be an essential tool to promote FI in many countries in Africa. Social networks help make the world a global village and financial players can use the platforms to market services and products to target audience. As financial exclusion remains high across Africa, with high demands for technology to improve financial access to all, social networks have been widely used to market other businesses but the financial industry is yet to utilise it. The outcomes of the current study demonstrate the need to use social media for marketing financial products and facilities as well as to disseminate information. As audiences become active, engagement and converting information to existing and prospective customers is easier. Social networks have several benefits that include low costs involved, increased visibility, promotion of content offers, increased trust and credibility. Nowadays, the sense and scope of content may include images, info graphics, podcasts, videos, and so on, making social platforms appropriate. The introduction of smartphones enables individuals to utilise different social network platforms from anywhere. This becomes imperative to design appropriate marketing strategies to enhance FI levels. Social platforms are for not only raising brand awareness but also increasing expert-based recommendations while creating more traffic and ultimately greater leads.

To the best of the author's understanding, no research has investigated the influence of social media on FI. The extant literature has considered the effects of social networks on other types of business, while the current study focuses on the contribution of social network to FI. The current study used cross-sectional data to determine the influence of social networks on FI at a personal (individual) level. Many studies have concentrated on the user experience, views and personality, applying these factors to prompt the behavioural, attitudinal and essential features of social network consumers. Some studies used the TAM (Technology Acceptance Model) to investigate the supposed expediency of virtual networks. For instance, Hsu and Lin (2008) researched the role of TAM in consumers' intention and attitude to blog.

Hossain and De Silva (2009) applied TAM with a special emphasis on the use of online societies under the control of societal connections. Steyn *et al.* (2010) researched the TAM with respect to social network announcements in public affairs circles to appreciate blog users' intent to apply the essentials of the publications. Casaló *et al.* (2011) applied TAM to study the consumers' intent to take counsel. The study results support the Personality Traits Theory that explains the characteristics that influence user behaviour. According to Digman (1990), the Five Factor Model of Personality Traits can be summarised as ingenuousness, friendliness, thoroughness, agitation and socialness that collectively or separately increase behavioural objectives of users of social media. The current study reveals that financial services players to advance FI levels can use social networks.

6.4   THEME III: DETERMINANTS OF FINANCIAL INCLUSION IN EACH OF THE SELECTED AFRICAN COUNTRIES

The current study sought to examine the contribution of age to FI in each of the four selected African countries.

For Kenya, South Africa and Eswatini results indicated a strong positive link between age and FI (p<.001). For the DRC, the outcomes show a significant positive correlation between age and FI at 10% significance. The alternative hypothesis that age influenced FI in each of the four countries was upheld. The significant and positive correlation suggests that as one becomes older with more opportunities that include steady income, s/he is more likely to be financially included. The results are in line with some studies that found age influencing FI in different countries (Deaton, 2005; Barnet and Solow, 2000).

This study sought to investigate the influence of age-squared on FI in each of the four selected African countries.

For Kenya, South Africa and Eswatini, results indicated a strong positive association between age-squared and FI (p<.001). The alternative hypothesis that age-squared influenced FI in the three countries was upheld. The significant and positive link suggests that financial services' use rises with age and falls at some age threshold. The results reveal that in retirement, income declines as one utilises the accumulated savings. Many studies established proof of an arch designed shape of savings which

resonates with the Life-Cycle Hypothesis (Setterfield, 2010; Cynamon & Fazzari, 2008; Asteriou & Hall, 2007).

The results for the DRC showed an insignificant relationship between age-squared and FI. This reveals that the null hypothesis that age-squared had no influence on FI was accepted. Though the relationship was not significant, the coefficient was negative. The results contradict the findings of Soumaré *et al.* (2016) who observed a significant link between age-squared and use of financial services. The differences in the association between age-squared and FI for selected countries (merged data) and that of the DRC confirm the need for independent assessment.

The study investigated the influence of gender on FI in each of the four selected African countries.

The results indicated that for the DRC and Eswatini, there was a strong positive correlation between gender and FI (p<.001). For Kenya, the result was also significant at 10% significance level. The alternative hypothesis that gender influences FI in the DRC, Kenya and Eswatini was upheld. The significant and positive association suggests that males are more likely to be financially included than females. Demirguc-Kunt *et al.* (2013) maintain that the difficulties women experience to gain financial access is exacerbated by the non-existence of collateral and inferior financial schooling.

The results for South Africa indicated that gender had no significant relationship with FI. The null hypothesis that gender had no influence on FI in South Africa was accepted. The other study results show males more likely to be financially included but for South Africa, it was different. This may be attributed to the fact that South Africa has an outstanding economic empowerment for women in the region that includes monthly government grants. The results were in line with Osei-Assibey (2009) who found that gender had no influence on FI levels in Ghana.

The study investigated the influence of marital status on FI in each of the four selected African countries.

The results for Kenya indicated a strong positive association between marital status and FI (p<.001). For the DRC, the results show a significant relationship, at 5% significance level. The alternative hypothesis that marital status influenced FI among adults in Kenya and the DRC was upheld. The significant and positive relationship

suggests that a married individual is more likely to be financially included than a person not married. The findings were consistent with that of Soumare *et al.* (2016) who found marital status influential in West and Central African nations. Martinez *et al.* (2013) found that the gender variable influenced FI in Mexico.

The results for South Africa and Eswatini showed an insignificant relationship between marital status and FI. The null hypothesis that marital status influenced FI in South Africa and Eswatini was accepted. The results were different from those obtained in the selected African countries model. The reason could be the differences in culture where anyone is capable of accessing financial services without considerations of whether one is married or single.

The study explored the influence of proof of residence on FI in each of the four selected African countries.

For Kenya and South Africa, the outcomes showed a strong positive association between proof of residence and FI (p<.001). For the DRC and Eswatini, the relationship was significant at 5% significance level. The alternative hypothesis that proof of residence has influence on FI among individuals in Kenya, the DRC, Eswatini and South Africa was upheld. The significant and positive association shows that those with documents required for accessing financial services are more likely to be financially included. This was also supported by some studies that revealed the lack of proper documents and collateral by individuals caused one to rely on informal sources of credit (Bending, Glesbert & Steiner, 2009; Zeller & Manohar, 2002).

The study explored the influence of branch access on FI in each of the four selected African countries.

In terms of Kenya, Eswatini and the DRC, the results indicated a strong positive association between branch access and FI (p<.001). The hypothesis that branch access has an influence on FI among individuals in Kenya, Eswatini and the DRC was upheld. The significant and positive association indicates that the further the distance from a formal financial services supplier one is, the less likely s/he is financially included. The results are in line with King (2011) who found distance to be a hindrance to financial access to individuals in the rural areas.

The results were different for South Africa where the relationship between branch access and FI in insignificant. The null hypothesis that branch access has no influence

on FI was accepted. South Africa has superior financial infrastructure compared to the other three countries, which may explain the non-significant relationship found. Branch access may not have a major effect in a country with formal financial services across the country even in the remotest parts of South Africa.

The study also explored the influence of location on FI in each of the four selected African countries.

For Kenya, the DRC and Eswatini, the results indicated a strong positive association between location and FI (p<.001). For South Africa, the relationship was significant at 10% significance level. The alternative hypothesis that location has an influence on FI among individuals in South Africa, Kenya, the DRC and Eswatini was upheld. The significant and positive link shows that one from the urban areas is more likely to be financially included than the one from rural areas. The results were consistent with Clamara *et al.* (2014) who found that some groups such as females, youths and individuals staying in rural areas had a difficulty in reaching the formal financial players' services in Peru. However, literature reviewed revealed that the effects of location could be reduced by applying technology and mobile money agents (Ouma *et al.*, 2017; Donovan, 2012).

The study explored the influence of education level on FI in each of the four selected African countries.

For the four countries, the results indicated a strong positive association between education and FI (p<.001). The hypothesis that education has influence on FI among adults in South Africa, Kenya, the DRC and Eswatini was upheld. The significant and positive relationship suggests that as one's education level gets higher, the more likely s/he is financially included. The results were consistent with Allen *et al.* (2012) who found education influential to the use of formal financial services. King (2011) who found that education influenced FI in Nigeria also supported the results. The findings differ from Park and Mercado (2015) who found that primary school level had no influence on FI levels in developing Asia.

The study went on to explore the influence of salary on FI in each of the four selected African countries.

For South Africa and Eswatini, the results showed a strong positive association between salary and FI (p<.001). For the DRC, the relationship was significant at 5%

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significance level. The hypothesis that salary has an influence on FI among individuals in South Africa, the DRC and Eswatini was upheld. The significant and positive association shows that those formally employed are more probable to be financially included. The results are in line with the finding of Sahoo, Pradan and Sahu (2017) who found that the nature of employment determined the FI levels of two districts in India. In Mexico, Martinez *et al.* (2013:15) found lack and inconsistent income flows as the most influential barriers to formal financial services. Employment nature was influential to FI in another study by Stanley and Bhattacharya (2008) in US.

The results indicated that the relationship between salary and FI was not significant for Kenya. The null hypothesis that salary has no influence on FI among adults in Kenya was accepted. The insignificant correlation contradicted Clamara *et al.* (2014) who found the nature of employment influencing financial access in developing countries.

This study explored the influence of income on FI in each of the four selected African countries.

For Kenya, South Africa and Eswatini, the results indicated a strong positive link between income and FI (p<.001). The null hypothesis that income influenced FI in the three countries was upheld. The significant and positive association shows that as one gets more income s/he is more likely to be financially included. The results were in line with Adewale (2011) who found income influential to FI in Nigeria.

For the DRC, the outcomes show that the relationship between income and FI was not significant. The null hypothesis that income had no influence on FI among individuals in the DRC was accepted. There is a difference with the results from the merged data model where income had a significant relationship with FI. Our result might surprise, in that in literature reviewed, income is influential to financial access. The insignificant relationship for the DRC contradicts studies that found income had an effect on the individual's FI status (Shihadeh 2018; Ghatak, 2013). In the view of the current study, this is a crucial issue for future research on the relationship between income and financial access in the DRC.

The study investigated the influence of mobile phone on FI in each of the four selected African countries.

For Kenya, Eswatini, the DRC and South Africa, the results indicated a strong positive correlation between mobile phone and FI (p<.001). The hypothesis that mobile phone influenced FI among individuals in Kenya, Eswatini, the DRC and South Africa was upheld. The significant and positive association indicates that one who uses a mobile phone is more probable to be financially included than the one who does not use it. The results were consistent with Seng and Lay (2018) who found mobile phone use by individuals influential to FI in Cambodia. In Kenya, mobile phone services promote FI, not only by giving users access to financial services through their mobile phones, but also by supposedly functioning as a stepping stone toward the adoption of a traditional bank account (World Bank, 2018).

The study explored the influence of internet access on FI in each of the four selected African countries.

For Kenya and South Africa, the results indicated that there was a strong positive association between internet and FI (p<.001). For Eswatini, outcomes indicated a strong relationship at 5% significance level. The hypothesis that internet access has an effect on FI among individuals in Eswatini, Kenya and South Africa was upheld. The significant and positive association shows that one who has internet access is more probable to be financially included. The outcomes are in line with Johnson and Arnold (2012:2) who argue that technology ushers in lower transaction costs as the cost of services is one of the major barriers to financial access.

Though there are, no studies in extant literature that support results of the current study, Bruhn and Love (2014) acknowledged that internet access may ease information asymmetry between banks and prospective borrowers. Bruhn and Love showed that the effect was significant in poor people and those regions with low bank penetration. Additionally, Lenka and Barik (2018) found a progressive link amongst spread of internet services, increase in cell phone use and improvement of FI in the region. Based on the outcomes of the current study, it can be concluded that internet access can have a positive effect on FI in the countries, with a significant relationship.

For the DRC, the association between internet access and FI was not significant. The null hypothesis that internet access has no effect on FI among individuals in the DRC was accepted. No study explains the insignificance of the association between internet access and FI. The results may be attributed to the low internet penetration rate of

8.62% in the DRC (World Bank, 2018). The ICT infrastructure in the DRC needs a lot of improvement before the country can experience high levels of FI.

The study investigated the influence of financial advice on FI in each of the four selected African countries.

For Kenya and South Africa, the outcomes indicated a strong positive link between financial advice and FI (p<.001). In the DRC, the relationship was significant at 10% significance level and for Eswatini at 5% significance level. The hypothesis that financial advice had an influence on FI in the DRC, Eswatini, Kenya and South Africa was upheld. The significant and positive relationship suggests that one who gets advice on financial matters from experts or the knowledgeable is more probable to be financially included. The findings are supported by studies that recommend the teaching of financial education in schools and provision of specialised financial advice (Lewis & Lindley 2015:20; Atkinson & Messy, 2013:40).

The results support the Theory of Reasoned Action that was founded on the idea that individuals make reasoned and logical decisions to behave in a certain way by evaluating the available information. Additionally, the findings also support the Trans-Theoretical Model (TTM), which is an intentional change model that looks at an individual's decision-making. The model assumes that individuals do not change their behaviours decisively and quickly.

The impact to influence an individual's decision through financial advice supports the Theory of Planned Behaviour (TPB), whose objective is to understand and predict human action (Ajzen, 1991). These financial behaviours include decision on saving and borrowing (Xiao *et al.*, 2006; Hogarth *et al.*, 2003). It can justifiably be concluded that financial advice positively influences FI in each of the four countries. Financial advice, internet access and social networks can complement each other as Table 5.3 shows positive correlation among the three variables. The policy-makers can formulate policies to stimulate them all for FI goals to be realised in all the selected countries.

The second research question of Theme III, that seeks to find the effects of social networks to FI, is provided in Sections 6.4.1.

6.4.1 Social networks and financial inclusion

The study explored the influence of social networks on FI in each of the four selected African countries.

For South Africa, Kenya and Eswatini, the results indicated a strong positive link between social media and FI (p<.001). The hypothesis that social networks influenced FI among individuals in the three countries was upheld. The significant and positive association shows that those who use social networks are more probable to be financially included.

For the DRC, the results showed that the relationship was not significant. The null hypothesis that social media had no influence on FI was accepted. Our result might surprise, in that the study had predicted a positive relationship. The result may be attributed to the small number of the population that used social media. About 6% of the DRC's population used social networks compared to South Africa-25%, Kenya-22% and Eswatini-25% (see Table 5.1). The low percentage of social networks users may also explain the insignificant negative relationship suggesting that social media made no contribution to FI in the DRC.

Regarding the significant results of the link between social networks and FI, the Technology Acceptance Model (TAM) is supported. Davis (1989), to clarify the necessity and application of innovative technology given people's approach to its implementation, advanced the TAM. This model has been adopted in social networks researches to investigate the same in relation to a number of social network technologies (see Casaló *et al.*, 2011; Kwon & Wen, 2010). It can justifiably be concluded that social networks can be a tool to improve FI in selected African countries.

The significance of demographic factors shows how important they are in formulation of policies by financial institutions, governments and other developmental bodies. Demographics are important because they provide broad understanding of the different characteristics of a population. The demographics are important for developing a better understanding of the public and, accordingly, make strategic business and marketing plans.

In FI, human capital factors are important because they increase capability and improve uptake of regulated financial services. If policy-makers invest in its citizens

through their education and training, the better the FI levels. The significance of income group factors prompts policy-makers to ensure that the population has more disposable incomes. Policies can be formulated to ensure that the formal sector grows at the expense of the informal. The policy-maker can focus on the communication factors as they improve innovation in the financial services sector. Cost effective, convenient and latest service delivery systems are a panacea for higher FI levels. The use of social networks and internet services will go a long way to encourage use of regulated financial services and products.

6.5   CONCLUSION

Formal financial institutions and individuals are anticipated to play a major function in realising high levels of FI. Marginal consideration was given to the determinants of FI specifically social networks, internet access and financial advice. The study results show the Demographic, Human Capital and Income factors that contribute the use of financial products and continually leading to FI/exclusion. Therefore, by distinguishing the different factors, this study offers a new model and dimension of thought towards FI.

Studies on social networks and FI are almost non-existent in light of the fact that in other fields, social network is an affordable platform for communication. Literature reviewed show that internet connections are vital for uptake of financial services delivery and no study has focused on the influence of internet access on uptake of formal financial services. Studies on financial advice focused on its effects on the choice of financial services/products to a financially included individual. The study results demonstrate that social networks, internet and financial advice can be used as tools to improve formal financial services use.

The outcomes on the variances across the selected African countries give evidence of the significant variances in FI as well as in the magnitude of abilities they possess due to different political and socioeconomic aspects prevailing in the various environments. It is worth noting that these Demographic, Human capital and Income factors are significant in clarifying FI regardless of the differences. That is what the current study also intended to reveal.

For the selected African countries model, significant relationships were established between age, age2, education, religion, education, marital status, branch access, location, internet access, salary, income, proof of residence, financial advice, gender, mobile phone, and FI. However, the relationship with FI results differed on an individual assessment of the four countries. Salary was statistically insignificant in Kenya. Age-squared, social networks, income, and internet access were statistically insignificant in the DRC. Gender, marital status, and branch access were insignificant in South Africa. Marital status was insignificant in Eswatini.

These outcomes provide new evidence in the FI literature with its rich independence and interaction of social networks. These help increase and improve the explanations power of FI both at personal and institutional levels. This is in addition to other Demographic, Human capital and Income factors considered in the study.

The results support and enhance the Financial Intermediation Theory that builds on the idea that financial institutions serve to accumulate savings for investment purposes. The savings accumulation for investment purposes reflects the Harrod-Domar Model that postulates that the higher the savings rate or the bigger the savings, the faster the rate of economic growth. The higher the FI levels in the selected African countries, the easier it becomes to influence the saving rate in the economy. The savings and investments take place through the formal financial system as postulated in the Financial Intermediation Theory. The Financial Intermediation Theory and Harrod-Domar Models frame the articulation of this study.

The subsequent chapter outlines the impact to new information, deductions of the research, advice and propositions for future studies based on the outcomes of this study.

CHAPTER 7:
CONCLUSION, IMPLICATIONS AND DIRECTION FOR FURTHER STUDY

The key purpose of this study was to explore the determinants of Financial Inclusion (FI) in selected African countries, with the emphasis on social networks. Financial inclusion assists individuals in making reliable daily payments, decisions related to investments, as well as supplying access to savings and enabling them to access credit and other financial services. Research has shown that FI is a strategic enabler in boosting economic growth, lessening poverty and enhancing wealth. Chapter 6 discussed the results addressing Theme I, Theme II and Theme III of the study. The chapter presented the outcomes for the determinants of FI in Africa and in each of the selected countries. The theories and their interpretations clearly showed that all the variables considered influenced FI levels in the selected African countries. However, the results of the individual countries showed that some factors were not significant (see Tables 5.5 to 5.8).

This chapter aims firstly to abridge the empirical results obtained in the previous chapter to make it easier to advise the African governments and other stakeholders on the formulation of financial inclusion development policies. Secondly, to explain the impact of the present research to the extant literature and to stress the limitations and policy advice of the research. Finally, the chapter aims to wind up the study and to give suggestions for further research.

7.1   CONCLUSION

African nations have inferior FI levels in comparison to other regions on the globe, contributing to the low levels of development on the continent. Due to the pivotal role played by the financial systems in alleviating impoverishment and stimulating trade and industry expansion, it is imperative to appreciate the factors influencing FI in Africa. The results of the study show the empirical evidence regarding the factors contributing to FI in selected nations in Africa. The designated African countries being South Africa, Eswatini, Kenya and the DRC. The confirmation provides further support to the existing theory and literature enlightening FI matters. Therefore, the results add to a wider FI discourse, particularly on the four dimensions of FI used for this study,

namely, Saving, Investment, Borrowing and Bank penetration. The findings support previous studies, policies, programmes, initiatives by various development institutions, and financial institutions' decisions to promote inclusive banking systems.

The research focus was to fill the knowledge gap that existed on other factors influencing FI. The gaps also emanated from the existing literature's focus on the supply-side perspective. This resulted in ineffective FI policies and programmes which caused the problem to persist in many developing countries. Individuals or users are important in all FI activities and programmes. The key research question was whether participation in social networks, among other factors, influenced FI. The section below presents the conclusions for each Theme of the study.

7.1.1 Theme I

The study presents evidence of significant dissimilarities among the four selected countries' data sets used. There are differences in terms of variables across the four countries. The variables considered include the following: FI, age, gender, marital status, proof of residence, branch access, location, education, social networks, financial advice, internet access, mobile phone, salary and income.

The results show an uneven distribution of formal banking services in the four countries, reflecting the differences in financial product use and abilities that adults possess. For developmental purposes, particularly in African countries such as Eswatini and the DRC, banking needs should be addressed. This is in line with improving supplies through aggressive strategies and attending to the demand-side aspects inhibiting FI. The initiatives by decision makers and financial organisations have to focus on the distribution of appropriate financial services. The products and services must simply be comprehensible and culturally fit to the banking public.

The results show the requirement for a wider and greater insight into the complicated nature of societies. Moreover, the significant and consistent variances suggest that future research ought to appreciate that individuals from different nations may have common characteristics albeit with varying capabilities in terms of accessing and using financial services. The distinct abilities vary, especially if examined separately. The significant outcomes buttress the participation in the financial system, regardless of the differences in people's characteristics.

7.1.2　Theme II

In economics literature, FI is a vital means of improving the welfare of individuals and the mobilisation of savings for capital across the globe. FI has become important for the development of economies across the world, with some studies evaluating its determinants and measurements. The establishment of FI determinants are important for the formulation and implementation of policies.

With low levels of FI prevailing across Africa, the identification of the determinants sheds more light on how the policy-makers and financial players could improve FI levels. Bank branch access is one aspect of the supply side that has been investigated, whilst the rest of the determinants have emanated from the demand side. The current study brings a relatively novel and significant viewpoint to addressing FI across the globe. All independent variables were significant in merged data for selected African countries but the results were different when tested at country level. The consideration of social networks into the five models brought in a new perspective of improving the FI levels in the different countries. The current study makes it a building block for digital FI.

The first objective was to explore the determinants of FI in selected nations from the African continent. The study presents evidence that the following factors influence financial inclusion: age, education, marital status, bank branch accessibility, location, internet access, formal employment (salary), income, proof of residence, financial advice, gender, social networks, and mobile phone. The findings provided insight contributing to the debate on how FI or usage of official financial facilities could be improved and deepened across Africa.

Age has a huge bearing on financial services uptake and usage. Different categories have unique needs and characteristics. The significant results obtained on age shows that the greater the chance of being financially included increased with age. Age square had non-linear relationship with financial inclusion. Policies should consider the uniqueness of each age group in the provision of appropriate financial products to improve FI levels. For example, no-frills personal accounts for those that possess tertiary qualification will help ensure that they are financially included. This will make them deposit as and when they have something to save or be in a position to borrow.

Women were less likely to be financially included than men, implying that policies to improve the financial status of women are required. A married individual was less likely to be financially included than an unmarried individual, reflecting the likely effects of consumer buyer behaviour on decision-making. Married couples should be encouraged to open separate accounts where each partner can make their own decision. Mistrusts between couples can contribute to lower FI levels, as reflected by the results. Products targeting an individual making an independent decision will push further FI results. More studies should investigate how financial services products are to be designed so that more married people can use formal financial services.

Having a proof of residence increases the probability of an individual using formal financial services. The regulations and compliance challenges that prevail in opening bank accounts require consideration by authorities. This can be done in light of some people having some form of national identification but without supporting documents for their residences. Accommodating those with compromised residences will improve their welfare rather than letting them go without formal financial products at all. Literature has shown how the poor can improve their lives by borrowing for their education or productive purposes. Therefore, it is important for know your customer (KYC) procedures to be tailor made for different classes of citizens to ensure that all are included.

Nature of employment is a determinant of an individual's FI status as a person in formal employment is more likely to be using formal financial services. The person who is formally employed and has access to a regular income may be required to have a formal account in which to receive the salary on a monthly/weekly basis. The higher the income a person receives, the higher the chance of being financially included. Higher income demonstrates better disposable income for savings, investment, and so on, increasing the probabilities of having a desirable FI standing.

Internet use has an encouraging influence on FI standing, as the individual may be accessing financial services online. Through the Internet, an individual has access to important information leading to a decision to use an official financial organisation's facilities. In Africa, the use of mobile phones has also made a positive contribution to FI, as the individual is likely to access mobile financial services at his or her convenience and access other important information.

The more time it takes the individual to reach the nearest bank branch, the less likely s/he to be financially included. This then implies the need to design policies that encourage the use of technology in accessing financial services. In addition, the rural poor are less likely to be included, implying that the governments, financial players and other developmental institutions must ensure that infrastructure is set up to improve the FI levels in rural areas. Adoption of latest ICT applications that are accessible to customers is crucial, as literature has shown that it is cheaper and more convenient. Mobile banks are an alternative for areas where there is poor infrastructure, however, ensuring security of the same is important.

The more educated the individual is, the more likely s/he is financially included, meaning that someone highly educated is capable of better appreciating the significance of having a formal account than the someone who is less educated. Literature has shown that improvements to the literacy levels help shape a better society to live in by improving understanding and taking advice. As individual becomes more educated, the use of latest ICT applications or social networks may not be a challenge. Governments have to continue improving literacy levels as this makes a positive contribution to financial inclusion.

An individual who participates in social networks is more likely to be financially included than an individual who does not use it. It is important for financial players to use social networks to influence the unbanked to use formal financial services, in this way ensuring that financial inclusion levels improve. The literature has shown that many people have become part of social networks and the platforms are effective in influencing an individual's decision. Information may be disseminated through social networks to market financial services and products that are appropriate for particular segments of the population. Utilising social networks in a proper and effective way makes crucial financial information accessible to the users, thereby making individuals use more formal financial services.

There is a higher probability that an individual with access to financial advice is financially included than someone who does not have access to financial advice. The empirical outcomes demonstrate that financial advice is an essential element in the delivery of financial services, as the person will be equipped with the requisite information to make a positive financial decision. The results of the current study have shown that online platforms can complement social networks in giving financial advice.

This is in line with the extant literature that shows the importance of information to enable positive decision-making. However, the literature has not considered the combination of social networks and internet access in terms of improving financial inclusion levels through crucial financial information (advice).

7.1.3 Theme III

At individual country level, the results differed from those observed in the selected countries (combined data) model. Another objective was to explore the determinants of FI in each of the four designated nations.

In the DRC, the following factors were insignificant: age-squared, social networks, income and internet access. Participation in social networks was low in the DRC and that contributed to its non-significance. Internet access was also low in the DRC due to poor infrastructure. The low number of respondents using internet contributed to its non-significance. The DRC government has to work on improving the ICT infrastructure across the country to facilitate online connections. The literature has shown that less developed infrastructure hinders online connections that are pivotal for services delivery. With better connections, the DRC will be able to record more people using phones that can be utilised for internet purposes, social networks and financial services use. Such developments will result in the transformation of the financial services sector with innovations being the main driving force.

In Kenya, all the factors considered were significant, except for salary, although the combined model showed a different result. With more people on formal jobs, Kenya has the potential to record more people using formal financial services. The literature has also shown that the youth are the most affected as low job opportunities prevail in many African countries.

In South Africa, all the factors were significant, except for gender, marital status and bank accessibility. From a financial services perspective, women have similar opportunities to open bank accounts. The payment of social grants in South Africa contributes to the proportion of people using financial services, though the rate of usage is compromised. South Africa has the most developed infrastructures among the four countries under study and bank accessibility levels in the country are advanced. The facilities are easily reachable, such that the distance/time taken is

seldom a hindrance. Bank facilities should be available and easily reachable to the convenience of all.

In Eswatini, marital status was insignificant, while the rest of the factors were significant. The non-significance of marital status goes to show the accommodative policies and few challenges faced by a married or single individual.

The single-country research analysis permits comparison of results. The study presents evidence that the intensive study of a single country can yield general theoretical insights with comparative implications.

7.2   STUDY CONTRIBUTIONS AND IMPLICATIONS

7.2.1   Theoretical implications

The theoretical implications are based on the premise that the outcomes of the study supported the theory and filled the identified gaps, as well as whether they answered the theoretical questions or not. The findings of the determinants of FI and variances in Chapter 5 confirm the existence of financial exclusion problems in selected African countries. According to the Harrod-Domar Model, the lack of physical capital slows down economic progress. This implies that low FI hinders economic development in selected African countries.

The Harrod-Domar (HD) approach provided the theoretical foundation for this study. The HD model postulates that savings, investments and financial sector expansion lead to higher economic evolution. In this regard, saving and investments for growth are pointless without consideration of the challenges related to high financial disintermediation or low FI levels. There are limitations in the HD assumption that growth target is achieved by savings that eventually become investments. This leads to the question: Where does capital come from without savings? In many developing economies, the function is largely inapplicable without recognising the means of accumulating savings in view of low FI levels. Therefore, this study established that high FI levels in Africa should complement savings and financial investments. Savings are enhanced by the use of social networks in improving the use of regulated financial products.

The growth rate (g) will remain slow in selected African countries if FI matters are not addressed. The exclusion of FI in the growth function helps explain the reliance by

many countries on foreign aid or sovereign debt. The current study established the equation below that could extend to factor in FI level.

g = s/v – d (s: savings rates; d: depreciation rate; and v: capital output ratio)....... [19]

Thus, savings rate (s) is a function of FI. Where, the FI levels are determined by all the variables considered in this study. The variables include, among other determinants, social networks. The higher the FI level, the greater the savings rate, and the faster the growth rate. The study acknowledges the role of the financial system (savings) on economic evolution by exploring the determining factors of FI in designated African nations.

The Uses and Gratifications Theory (UGT) that provides the theoretical grounding for the use of media points out how people actively seek out particular media content for specific intentions and goals (Moreno & Koff, 2016; Katz, Blumler & Gurevitch, 1974). The UGT assumes an active audience member with the capacity to deliberately examine and evaluate media in order to achieve certain goals (Wang, Fink & Cai, 2008). The UGT theory contributed immensely to the functional shift in communications, moving from what media did to audiences, to what people could do with media. However, the key gap in this theory emanates from assumption four (see Section 3.2.1.3) that people or users are self-aware of their media use, which has been perceived as one limitation of the theory (Moreno & Koff, 2016). The study found that a combination of financial advice or guidance in combination with other platforms is important in influencing FI in designated nations in Africa.

From the Theory of Planned Behaviour (TPB) perspective, which posits that an individual's behaviour or intentions are shaped by the following: approach toward behaviour, supposed behavioural control and personalised norms (Ajzen, 1991, 1985), the factors that shape one's behaviour are limited and a gap exists (Ajzen & Fishbein, 1980). Though Ajzen and Fishbein improved this theory in the Theory of Reasoned Action, there remains a gap filled by considering changes in technology. The current study notes the effects of social media and internet in shaping one's behaviour or attitude. The theory can be extended by including a factor(s) that shape the individual's behaviour. This study therefore established that the Internet, social media and financial advice, among other factors, could determine an individual's plan in managing his/her finances. Financial information, if accessed through different

social networks and internet platforms, may possibly influence an individual to make a positive financial act.

The Theory of Planned Behaviour (TPB) is more appropriate when the actual control and probability of success and behaviour performance are suboptimal. The TPB's main input is the notion of perceived behavioural control described as somebody's opinion of the struggle or simplicity of acting in a particular way (Ajzen, 1987). Based on the outcomes of the current study, the idea of perceived behavioural control can be shaped by financial information (advice) disseminated through the Internet or social media using mobile phones, among other gadgets.

The contribution is in addition to subjective norms and attitudes that comprise the Theory of Reasoned Action. Moreover, both models emphasise the idea that individuals make reasoned and logical decisions to behave in a certain way by evaluating the available information. Information disseminated through social media platforms can influence the individual's financial behaviour or FI decision. The control of the individual's financial behaviour will result in higher levels of FI, as financial advice leads to changes in financial decisions or perspectives.

This study thus extends each theory from the use of social networks and internet platforms to ability to access financial advice, thereby enhancing positive behaviour. Therefore, the contribution of the study is the proposed financial inclusion model. The financial inclusion model states that the probability of an individual being financially included is a function of age, age-squared, gender, marital status, proof of residence, branch access, location, level of education, social networks, financial advice, mobile phone use, salaried/not salaried, and level of income. The financial inclusion model is proposed in Equation 11 as:

$$FI = \beta_0 + \beta_1 age + \beta_2 gen + \beta_3 mar + \beta_4 Proof + \beta_5 Baccess + \beta_6 Loc + \beta_7 age^2 + \alpha_1 edu + \alpha_2 media + \alpha_3 Advice + \alpha_4 internet + \alpha_5 phone + \Omega_1 sala + \Omega_2 Inc + e,$$

The study proposes that a financial inclusion model should reflect the role of social networks' use, internet access and financial advice, among other determinants. In this way it will provide better insight and stimulate scholarly debate, and lead to more research on financial inclusion in Africa.

7.3 METHODOLOGICAL IMPLICATIONS

The similarity of the empirical work that investigated the determinants of FI done by Bakari *et al.* (2018); Evans and Adeoye (2016); Tuesta *et al.* (2015); Laha and Kuri (2011) is that FI was analysed from three scopes, specifically Penetration, Availability and Usage. The current study contributed new knowledge by introducing saving and investment as separate dimensions for policy-making reasons. This is in line with theory, as the Harrod-Domar (HD) models postulate that savings, investments and financial sector expansion lead to higher economic evolution. The current study considered the following dimensions in light of the emphasis in theory: Saving; Investment; Borrowing and Bank Penetration.

Prior empirical studies used a limited number of proxies for FI as the dependent variable (see Soumare *et al.*, 2016; Bapat & Bhuttacharyay, 2016; Martinez *et al.*, 2013; Laha & Kuri, 2011). Bakari *et al.* (2018) and Tuesta *et al.* (2015) used a composite index as the dependent variable using supply-side data, which did not give the correct reflection of FI status at personal level. To the best of the researcher's knowledge, the present work is the first to use 16 proxies for the dependent variable. The proxies used are outlined in Table 4.2. The proxies that are used in the current study provide a more comprehensive reflection of an individual's FI status.

No study, according to the researcher's knowledge, has done a double-stage analysis, in other words, a regional and country-specific analysis in the same study. The prior empirical studies have either done studies for blocs and regions, or focused on an individual country (Bakari *et al.*, 2018; Tuesta *et al.*, 2015; Sarma & Pais, 2010). Instead of using a large number of nations, the current research used a smaller sample of selected countries in Africa, and to allow for better analysis, Probit Model results were reported at regional level and individual countries.

The results showed that the use of many countries in a sample with the objective of attaining a common or general result has limitations. The limitations are that countries have different levels of economic development, policy procedures, cultures, and so on, making a general conclusion inaccurate. The results obtained at combined level and individual country level were different. At combined level, all variables were found significant but at individual country level, some were not significant.

In addition to the double stage analysis, the current study did an ANOVA, and found that all variables across the four countries were different. There were notable variances in all the elements under consideration. According to the researcher's best knowledge, no research has focused on analysing merged and country-specific data. The double-stage analysis was in addition to ANOVA. The current study has therefore closed that gap.

The current study's methodology provides robust findings on FI that are applicable to the developing countries' context. This was possible because large cross-sectional data from four different countries' surveys was used. Therefore, the current study displayed a comprehensive reflection of the composition of citizens from rural or urban, and income segments that are vital in evaluating inclusive financial systems.

7.4   POLICY AND MANAGERIAL IMPLICATIONS

Based on the study's outcomes, theoretical and methodological inferences, this section discusses the strategy and managerial implications/recommendations relevant to boosting FI among individuals in Africa.

7.4.1   Policy implications

The promotion of FI across the world is a shared obligation of governments, development partners and other stakeholders. While finance is the lifeblood of the modern economic unit, FI is the harbinger that facilitates the participation of all sections of the population in the financial industry. The effectiveness of the financial sector is influenced by its capability to direct funds from surplus to productive units.

The banking sector has established principal control of the economy, and its dictates place the basic mode of production at the disposal of pioneers in high yielding structures. There are economic objectives to reduce disparities that are mainly useful for equitable growth in all segments of society. The reduction of differences amongst the population may serve as a catalyst for the growth of underdeveloped and developing communities or economies. The provision of banking facilities to marginalised sections can enhance the mobilisation of savings in the economy. Money that is effectively channelled to savings, investment and capital through formal financial systems improves economic growth in African countries. The growth in FI levels increases the innovation of the monetary system.

The necessities, as well as requirements, of a larger section of society are met through the provision of a wide variety of instruments amongst other services. The larger the financial sector, the more the financial players and participants, leading to banking sector growth. The analysis at regional and country level done in the current study opens discussions to more suggestions. Discussions stimulate empirical work and policy initiatives, thereby promoting inclusive financial systems.

The United Nations' (UN) capital investment business, UNCDF, has also taken FI on its development agenda. The current study will contribute to the research needs of such organisations because it is a building block for digital FI. The current study will close the gaps in the UN's sustainable development goals (SDGs) research needs, particularly in terms of the following: 1) SDG 1- no lack of basics of life; 2) SDG 8- satisfactory work and economic development; and 3) SDG- 17- unravelling public and private finance for the marginalised at local level. The current study contributes to the identification of: 1) Determinants of FI for policy formulation, and 2) Market segments where advanced financing models can be transformational in addressing financial exclusion.

When there is an impending economic constraint, it is imperative to get a practical solution to improving FI of all segments of the society. Collecting information and arriving at the correct judgment regarding the FI status in Africa is a crucial stage in the development of public strategies that may generate greater coherent instruments for financial system efficiency. The gathering of information will also help in promoting the FI of the African population. The analysis of facts on obtainability and usability of formal financial facilities in Africa will aid the central banks to accomplish their organisational duty, and achieve their mandates of promoting the efficacy of the nation's financial system and maximising levels of FI on the continent. The provision of FI data enables the determination of factors influencing FI at different levels, and policy designing, implementation and evaluation become possible. The availability of proper financial inclusion information also assists countries to define a future model and draw up plans for achieving higher economic growth levels.

To improve FI in rural areas, the governments have to provide appropriate infrastructure that will attract financial services suppliers to those areas. The provision of mobile phone networks will make it possible to access mobile banking services, encouraging those in the areas to become financially included. The governments can

foster the provision of Point of Sale (POS) machines to reduce the need to keep cash and instead promote the use of bank cards.

In all rural areas, the governments can introduce Post Savings Bank services that are wholly owned by the government to keep the people financially included. Although the majority of countries across Africa have such institutions, they operate as private players resulting in some remote areas going without official financial services providers. There is need to introduce mobile financial products that operate from one point to the other periodically to ensure and encourage the uptake of official financial services.

Furthermore, the outcomes of the current study show that mobile phone use contributes to the increase in FI at an individual level. The government can encourage the use of mobile phones through the provision of a range of infrastructure and awareness programmes that may be presented in partnership with mobile phone suppliers. The use of cellular phones will enable a multitude of people to reach digital financial facilities and foster improvements toward modernisation that include digital technologies. These developments can encourage the use of formal financial services in countries or areas with low levels of phone use, such as the DRC.

Women still lag behind in terms of formal financial products across the African continent. There is a need to design policies focusing on women's financial empowerment resulting in improvements related to FI in women. The governments in conjunction with some pressure groups can create platforms where women can advance their concerns, such as no collateral on borrowing, as the husband may be a hindrance in the process. The governments can assist in the establishment of women-focused institutions, such as Women's Banks, with appropriate savings, investments and borrowing products. In addition, there is a need for products that cater for the different types of marital status, in other words, for the married, single or divorced. Governments may take a cue from the Bangladesh model initiated by Mahomed Yunis.

Across all selected African countries, the levels of education should improve to increase FI. The more educated people are, the better the level of appreciation of financial matters. It is therefore important to improve education standards for the entire population in all countries, particularly those with low literacy levels. Financial literacy programme initiatives work better and more effectively in an educated society.

Proper policies have to be designed to avoid the exclusion of those with inadequate documents that prevent them from opening an account. The Bank of International Settlement can consider encouraging all banking institutions to relax the KYC conditions/requirements to ensure all adult citizens are financially included. The Bankers Associations can design a coherent policy that will apply across the banking sector to enable all eligible citizens to operate basic or special bank accounts.

Legislation may be created that ease the banks' requirements in terms of the documentation needed to open an account. The majority of the population who are tenants experience challenges in this regard because they have no utility bills in their names. The cumbersome process to meet the documentation requirements of banks puts off consumers. With government's assistance, just the national ID should suffice for opening an account with a formal financial institution. The government can design a policy that prohibits banks from denying any citizen carrying a national ID to open an account. Some governments, for example, have successfully implemented such policies and it has been effective in improving high FI levels. The governments only have to be strict on issuing national IDs to reduce the possibilities of frauds.

The formalisation of the economy is the key to ensuring all formally employed persons pay their tax dues. If every citizen has a tax number, it will ultimately improve the formality of the African economies.

To improve branch accessibility in areas where it may not be profitable to establish a branch, banks may share infrastructure to reduce overheads. The governments can also provide the infrastructure, while the service providers pay a nominal fee for maintenance. The model popular with mobile phone services providers and internet services suppliers can be followed to reduce overhead expenditure. The use of bank agents at central points or shops all over the countries can help to improve FI levels. This will improve branch accessibility in areas where it is considered unprofitable to establish a branch.

The provision of internet facilities and/or infrastructure by the government will go a long way in encouraging or improving FI at the individual level. The provision of some financial information online to capture internet users is a brilliant idea. Governments can actually provide financial information online as part of its financial literacy programme.

Providing financial advice through different social media and internet platforms allows instant feedback. The same concept used in the medical field where advice is accessed through a virtual platform could be adopted. When financial advice is easily accessible at a minimal cost or free of charge, a consumer is able to make an informed financial decision. Financial advice should be encouraged to all citizens, as it increases their ability to make informed decisions, thereby actively contributing to the national FI policy goals. Bankers Associations and bodies representing all banks can provide platforms for information dissemination, thereby increasing the use of financial services and products that may include high interest savings accounts. To be effective, advisors must be from the same area, where possible; clarifying, translating, and promoting products appropriate for the people.

Setting up financial advice desks in banking halls is another way that information on banking services and products can be disseminated. The researcher also recommends the creation of a 'Citizen's Advice Bureau' which will provide financial guidance and assistance to those in rural areas. In addition, volunteers from the rural community must be capable of offering advice on a regular basis. This strategy is likely to be relevant but it needs to ensure the availability and accessibility of relevant material.

Sources of financial advice in Africa may include financial institutions, professional financial advisors and friends/family. Trust is a major issue in financial advice. Many people are more likely to believe a financial advisor from the neighbourhood, speaking their own language than someone unknown to them. This policy must also include those speaking their own language, interpreting for them or explaining issues to them in banks. Many African governments require functional Financial Advisory Boards that set rules, regulations and ethics for practice.

The governments should consider introducing a relevant and practical financial inclusion policy to tackle financial exclusion. The overall aim will be to enable every citizen to oversee their finances meritoriously and unwaveringly by having access to official financial accounts, confidence and being able to get the most benefit from it. The government programmes can increase formal financial access to all segments through financial education, savings groups and digital literacy. The policies can be split into: 1) Access to a financial institution, and 2) Having the knowledge to use it properly. In terms of access to bank accounts, the major issue is to ensure as many

as possible people are able to operate bank accounts. This enables citizens to use direct debits (bill payments). The relevant Government departments or ministries, Central Banks, Bankers Associations and Consumer Bodies must team up if these policies are to produce results.

Financial education schemes can start at the primary school level, and the youth should have access to scheduled and linked programmes that include training in personal finance management. Training teachers in money management, will enable financial inclusion to become part of the curriculum. Financial literacy can start right from the birth of the child. Midwives having information about financial planning can issue booklets guiding parents. This can go a long way in boosting confidence and increasing knowledge amongst low-income groups in different countries. The parents' guide if translated into the different local languages will be effective.

Services can be tailor-made to fit the various people from all income brackets and locations. Government programmes should be in place, and earmarked to improve financial capability, especially to those exposed to the effects of poor financial judgements. These programmes may also embrace money advice campaign programmes. In addition, there has to be a plethora of actions involving some government ministries for educating certain marginalised sections of the populations. Through various information and community centres, professional sessions on personal finance, financial management or basic training can be done at rural business centres. These sessions can be done concurrently with women organisation or pressure groups. In these centres, different financial information can be availed as locals have confidence in advisors from their communities or acquainted with their cultural backgrounds and language.

Data plays a crucial part in the policy formulation, implementation, monitoring, and evaluation. Financial inclusion surveys or consumer surveys with exhaustive, unbiased, and consistent key pointers enable policy-makers to establish high financial inclusion levels. With the use of relevant data, the policy-makers can also set targets, detect prevailing hurdles, formulate efficacious policies, monitor and then measure policy results. It is also possible to foster private sector objectives and targets grounded on household or any other relevant information that financial access assessments can avail. Data on FI remains scarce, but recently, there has been an increase. As data is a prerequisite for an effective financial inclusion policy, countries

without sufficiently developed statistical departments can make use of data collected by other organisations while developing sustainable infrastructure for proper collection of own data. External sources of data have one disadvantage that the analysis lacks depth and less tailored than country surveys. Financial inclusion indicators if outlined will help countries come up with measures.

The researcher strongly recommends a guide to good professional practice involving individuals from different areas. In addition, financial competence workshops should be held periodically to help reach the different segments of the society. For the efforts to be effective, they must work closely with other organisations in achieving the financial inclusion goals. These bureaus must be accountable to a government body or another type of authority. The reporting systems must be in place. Advisors from the local communities can act as staff and/or volunteers. Data must also be continuously or periodically available for impact assessment.

Consumer bodies can assist in achieving higher levels of FI by designing policies, embarking on FI studies and financial information promotions on financial proficiency, financial markets and financial inclusion. In addition to these initiatives, establishing Ombudsman offices will cater for financial customer queries. Therefore, policies and regulations must also focus on articulation of flexible approaches accommodating innovation and competition.

7.4.2   Managerial implications

There are a multitude of initiatives that financial institutions can take in the financial inclusion programme. Banks can offer tailored services that are easier to use and more convenient to the excluded and vulnerable groups. Target groups should include the low-income earners. There can be specific accounts for rural people that they can access through agents located in their areas. Low charge accounts should cater for low-income citizens to enable them to access basic bank accounts.

Financial institutions have to invest in research and development to be able to significantly improve or achieve FI goals. For proper policies to be crafted, implemented and evaluated, it is crucial for the players operating in African countries to analyse models that can be used to explain saving motivations. Motivations for saving include precautionary, down payment, life cycle, improvement, intertemporal substitution, bequest, avarice, independence and enterprise. The Life-Cycle

Hypothesis remains a prominent model of savings. However, the model requires alteration to apply to the multi-generational households usually found in African societies.

People need a secure and suitable place to preserve their funds which is coupled with a mechanism to save periodic small amounts transforming them into huge sums. An effective model takes cognisance of choice matters and guide on how services and mechanisms support the poor and financially excluded individuals to fulfil their objectives. Therefore, savings remain imperative to the poor and rich households, as folks are keen to pay for the service. Credit is equally important as it plays a significant part in capital allocation.

For the formal financial industry to be in a position to capture the informal financial system there is need to formalise or convert the informal structures. The informal system models existing in many African countries are important to understand formalisation as possible. The models that could be relevant for consideration include associations, village banking models, bank sureties, communal banking, cooperatives, credit unions, clusters, peer pressure, individuals, intermediaries and ROSCAs (see Section 3.5). The models are interwoven, and different organisations have included the structures of two or more models in their operations. The informal financial system exists today due to low-income individuals with no access to formal financial institutions.

Structures existing in the informal financial system, if harnessed by banks using social networks (WhatsApp, Facebook, Instagram, and so on) and other internet platforms, will bring convenience in the personal financial advice and marketing of formal financial services and products. In addition, if an identified influential and trusted member of the group is advised and encouraged, other members are likely to be for the idea. If such groups are in place and are on social media platforms, banks can attract them into the formal system.

There is a necessity for financial entities to introduce innovative methods by using technology to reduce barriers and costs in accessing or provision of formal financial products. The use of cell phones can transform the cost and access equation, enabling financial services suppliers to serve the isolated and poor individuals or communities.

In addition, the increase in the use of phones will make it easier for the introduction of mobile financial services, such as M-PESA in Kenya, wherever there is a network. The use of mobile phones is transformational, as services spread to those unreachable through traditional branches.

Financial institutions can collaborate mobile phone suppliers and consider marketing a whole package i.e. phones and financial products.

The opportunity in the risk analysis space is where banks utilise innovative social and analytics technologies originating from the FinTech realm. This assists in doing customer analysis or evaluations from different dimensions to ascertain their creditworthiness. Banks and FinTechs are then able to discover entirely new lending models that may attract those using informal financial products into the official financial stream. Financial institutions are also capable of evolving from simple transactional relationships to a platform business model that opens more opportunities to engage with existing and potential customers. With social media, internet, financial advice and other technology architecture in place, financial institutions have many partnership opportunities with FinTechs and other unconventional players.

Governments should be encouraged to come up with Financial Inclusion Taskforces. Financial Inclusion Taskforces track governmental FI policies, as well as making recommendations about linked programmes. The team of experts can be composed of financial inclusion scholars and banking industry players. FI matters should be researched to revealing insight related to the information foundation of financial inclusion in Africa or developing countries. The taskforce can be part of the central banks playing a catalyst role in the uptake of basic bank accounts.

The promotion of salary-based financial products, such as loans, will encourage employers to formalise the salaries by paying through the banks. The regularisation and formalisation of salaries and wages will see many workers receiving loans through formal financial institutions.

Banks are encouraged to develop special bank accounts that serve the desires of the marginalised population that requires accounts for payment of goods and services. Innovative products is one option as instruments such as e-money facilities, debit card and little-charge regular bank facilities can improve financial obtainability to the financially excluded.

Financial institutions must take advantage of consumers' desire to use or access social media to interact with potential or existing customers. This will also improve uptake of formal financial services as consumers are advised through social media. Communication has taken a dynamic shift from print or television to two way (feedback) chats through different social media platforms.

Banks are encouraged to work together with women support organisations and community clusters. This study advocates a coherent working relationship with government agencies and women clusters to enable funding and capacity building. In addition, there can be notes and advice exchanges, developing a multi-agency platform for the service of referrals that are used across women pressure groups and other community groups.

Financial sector policies and regulations are important in fostering technology use to promote FI. This allows the financially excluded to have access to a broader scope of financial facilities. Innovation by using internet, social media, financial advice and mobile phones assists in designing and distributing financial services.

7.5   STUDY LIMITATIONS

The impetus of the research was to examine the determinants of FI in designated nations in Africa. In carrying out the study, some limitations were evident.

A sample of four countries was used, as the other data sets considered did not have proxies for internet, social media and financial advice. A larger sample would have been more appropriate if data and variables were available for all African countries. This calls for replication of the study in other countries because the current study has come up with a significant basis for other empirical enquiries.

The current work used cross-sectional data providing a snapshot at a certain period. Person behaviour and perception shift with time as well as environs compelling investigation over a period to attain a better understanding of financial behaviour capabilities. In such cases, a longitudinal study would produce a better result.

There are also drawbacks of the current study that include surveys done at different periods (years), and some surveys leaving out important variables (questions) such as use of social media. Data collection methods may change over time. An assumption was made that all surveys are similar, regardless of the time taken and the latest

survey for every country sampled was used. Those surveys that left out pertinent variables in the study were dropped.

Religion is a very influential factor of FI and the data sets used did not have a proxy. Many religious linked financial products can extend official financial services to the excluded owing to religious reasons. The introduction of Islamic finance in different countries' financial sectors can solve the financial exclusion challenges.

The other constraint was the scarcity of literature on the determination of FI in developing or African countries at personal level. This also included the contribution of variables such as personal financial advice to FI. The absence of specialised theories of financial advice and other aspects of FI in terms of developing countries made it difficult to evaluate the existing FI policies and programmes. The closest literature available on financial development was used for interpreting and understanding the financial development-economic growth relationship.

7.6   DIRECTION FOR PROSPECTIVE STUDIES

There is need to look at the impact of having bank accounts, using bank accounts, the informal economy, employment and poverty on the economy. An analytical study on the influence of financial and economic crisis on FI levels in Africa will provide a good reference.

Financial inclusivity is a reinforcing pillar for both poverty reduction and the prospects for trade and industry expansion, with the obtainability of digital financial facilities necessary to fuse the innovative digital thrift. There is more to research on the determinants of digitalisation and digital FI.

Financial inclusivity enables daily living, and aids people and organisations organise for all from long-term objectives to unforeseen crises. As users of official financial facilities, societies are more probable to utilise other financial facilities that include savings, loans, insurance, open industries, schooling or healthiness and risk management to ameliorate financial crises. All these are capable of improving the entire standard of their lives. It is important for researchers to consider focusing on the effectiveness of digitalisation on distribution of formal financial facilities particularly to those outside the official financial system in Africa.

Some future studies may also investigate the contribution of religion to FI, as the data used for the current study did not include it.

The need for data collection is important as different institutions collect information on FI in order to construct an image of the state of FI of a country. The data provision will assist with an overview that enables government agents and other stakeholders to increase the competence of the financial industry, in that way promoting socioeconomic development. Therefore, such exercises provide information for agents involved in FI efforts, including investigators, academics and other stakeholders that have an interest in FI.

The current study also supports the growth of business, as well as the prospects designed to meet the requirements of the populace. The collection of relevant data in all parts of Africa will enable the design of gradually more perfect and comprehensive public policies. As FI is an indispensable component of a coherent national financial industry, it is anticipated that the findings and recommendations thereof will result in more efficiency in financial systems. Relevant data also gives a broader perspective in observing and evaluating the effects of FI policies and activities in selected African countries. Consequently, it becomes a significant device for refining the strategies, and developing and employing innovative ingenuity over a period of time.

On a final note, studies show that religion is an important factor influencing FI. In a study to investigate the effect of an individual belonging to the Muslim community on the use of official savings, credit and accounts, Demirguc-Kunt *et al.* (2013) found that Muslims are less likely to use conventional official financial facilities than people from other religions. The research utilised a sample of 65 000 people from 64 nations. Therefore, religion may influence financial inclusion (Zins *et al.* 2016; Demirguc-Kunt *et al.,* 2013). In a study done in Norway, Brekke (2018) reported that there are real possibilities that religious norms against conventional banking can influence FI. However, the research did not focus on the actual use of conventional banks.

In another study to find out if Islamic banking can increase FI, Naceur *et al.* (2015:25) found that in Muslim countries, there are significantly more religious reasons for financial exclusion than are found in other countries. However, the use of services did not increase as quickly, even though the accessibility to official financial facilities had developed speedily in the OIC nations. Furthermore, regression analysis showed proof

of a progressive correlation to loans to family units and corporations for funding investments but the empirical connection was tentative and comparatively weak.

Therefore, there is still need to investigate the influence of religion on FI in selected African countries.

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APPENDIX A:
ETHICAL CLEARANCE CERTIFICATE

UNISA | university of south africa

UNISA DEPARTMENT OF FINANCE, RISK MANAGEMENT AND BANKING ETHICS REVIEW COMMITTEE

Date: 14 JUNE 2018

Dear Mr Njanike

ERC Ref # : 2018/CEMS/FRMB/014
Name : Mr K Njanike
Student #: 50401521

Decision: Ethics Approval from 01 July 2018 to 31 June 2023

Researcher(s): Name Mr Njanike

E-mail address kosmasnjanike@gmail.com, telephone +263772283902

Supervisor (s): Name Prof R Mpofu
E-mail address mpofurt@unisa.ac.za, telephone 012 429 4808

Working title of research:

An empirical test of financial inclusion in selected African countries: the role of policy formulation and implementation

Qualification: DCOM

Thank you for the application for research ethics clearance by the Unisa DFRB Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period **01 July 2018 to 31 June 2023**

The Negligible risk application was reviewed by the DFRB Ethics Review Committee on 14 June 2018 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment

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The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the DFRB Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.

7. No field work activities may continue after the expiry date June 2023. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number 2018/CEMS/FRMB/014 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Yours sincerely,

Signature
Chair of DFRB ERC : Mr G Grebe
E-mail: grebegpm@unisa.ac.za
Tel: (012) 429-6723

Signature
Executive Dean: Prof T Mogale
E-mail:mogalmt@unisa.ac.za
Tel: (012) 429-4805

URERC 25.04.17 - Decision template (V2) - Approve

APPENDIX B:

SOURCE, INDICATION FOR AND AGAINST KEY FI THEORIES

Theory	Source of the FI Theory	Indication for	Indication against/Critique
Life-Cycle Theory	Modigliani and Brumberg (1954)	Modigliani and Ando (1957); Ando and Modigliani (1963); Houthakker(1965);Tobin (1967); Modigliani (1970);Heckman (1974); Modigliani and Brumberg (1990);	Stafford (1974); Deaton (1991); Carroll (1997); Banks, Blundell and Tunner (1998)
Relative Income Hypothesis	Duesenberry (1949)	Friedman (1957); Easterline (1974); Abel (1990); Carroll, Jody and David (1997); Oswald (1997); Campbell and Cochrane (1999); Carroll, Jody and David (2000); Card *et al.* (2012)	Clark and Oswald (1996); McBride (2001); Ferrer-Carbonelli (2005); Luttmer (2005)
Permanent Income Hypothesis	Freidman (1957)	Flavian (1981); Hall and Mishkin (1982); Hayashi (1982); Summers (1982) De Long and Summers (1986); Meighir (2004);	Campbell (1987); Campbell and Mankiw (1990);
Kuznets Hypothesis	Kuznets (1955)	Dobson and Ramlogan (2008)	Deininger and Squire (1998); Barro (1999); Higgins and Williamson (1999); Savvidesa and Stengos (2000); Rajan and Zingales (2004); Rodrik (2007); Lyubimov (2017)
Financial Intermediation Theory	von Mises (1912)	Keynes (1936); Gurley and Shaw (1955); Tobin (1963, 1969); Sealey and Lindley (1977); Baltensperger (1980);Diamond and Dybvig (1983); Diamond (1984, 1991, 1997); Eatwell, Milgate, and Newman (1989); Gorton and Pennacchi (1990); Bencivenga and Smith (1991); Bernanke and Gertler (1995), Rajan (1998), Myers and Rajan (1998), Allen and Santomero (2001); Diamond and Rajan (2001); Kashyap, Rajan, and Stein (2002); Allen and Gale (2004a, 2004b); Matthews and	Warren Smith (1959); Paul Smith (1966); Guttentag and Lindsay (1968)

		Thompson (2005); Casu and Girardone (2006); Dewatripont *et al.* (2010); Gertler and Kiyotaki (2011) and Stein (2014)	
The Fractional Reserve Theory	Culbertson (1958); Aschheim (1959)	Crick (1927); Keynes (1930);Whittlesey (1944); Solomon (1959); Warren Smith (1959);Paul Smith (1966); Guttentag and Lindsay (1968);	Werner (2005)
Credit Creation Theory	Macleod (1856)	Davenport (1913); Hawtrey (1919);Samuelson (1948); Keynes and Moggridge (1983) Werner (2016);	Crick (1927) ; Keynes (1930);Whittlesey (1944)
Harrod-Domar Model	Harrod (1939); Domar (1947)	Jagadeesh (2015)	Nurkse (1953); Morgan (1969); Boianovsky (2015); Siraj and Bengali (2007)
Banerjee and Newman's Model	Banerajee and Newman (1993)	Galor and Zeira (1993); Picketty (1997); Ghatak and Jiang (2002);	Chittenden, Hall and Hutchinson (1996); Black and Gilson (1998); Muller and Zimmermann (2008)
Galor and Zeira Model	Galor and Zeira (1993)	Banerjee and Newman (1993); Ghatak and Jiang (2002)	
Modigliani-Miller Theorem	Modigliani-Miller (1958)	Modigliani and Milller (1963:433)	Stern and Chen (2003); Ahmeti and Prenaj (2015)

APPENDIX C:
TESTS FOR HETEROGENEITY

Breusch Pagan Test for Heterogeneity

Data set	F-Statistic	Prob>F	Prob>Chi2	Decision	Remarks
Africa	0.00	1.0000	0.0047	H_0 rejected	Heterogeneity exists
DRC	0.00	1.0000	0.0409	H_0 rejected	Heterogeneity exists
Kenya	0.00	1.0000	0.6923	H_0 rejected	Heterogeneity exists
RSA	0.00	1.0000	0.0000	H_0 rejected	Heterogeneity exists
Eswatini	0.00	1.0000	0.0001	H_0 rejected	Heterogeneity exists

Source: Author's Compilation

White Test Heterogeneity

Data set	F-statistic	Prob>F	Decision	Remarks
Africa	0.00	1.000	Reject H_0	Heterogeneity exists
DRC	0.00	1.000	Reject H_0	Heterogeneity exists
Kenya	0.00	1.000	Reject H_0	Heterogeneity exists
RSA	0.00	1.000	Reject H_0	Heterogeneity exists
Eswatini	0.00	1.000	Reject H_0	Heterogeneity exists

Source: Author's Compilation

APPENDIX D:
MISSING VALUE ANALYSIS & IMPUTED VALUES

1. Variables and missing values

DRC

Obs<.

```
+----------------------------
|        | Unique
Variable | Obs=. Obs>. Obs<. | values Min Max
-------------+-----------------------------+---------------------------------
Baccess| 239        4,761 | 4 1 4
Inc | 191      4,809 | 6 1 6
---------------------------------------------------------------------------
```

Kenya Obs<.

```
+------------------------------
| | Unique
Variable | Obs=. Obs>. Obs<. | values Min Max
-------------+-----------------------------+-------------------------------
Baccess | 611 8,054 | 4 1 4
Inc | 23 8,642 | 7 1 8
----------------------------------------------------------------------------
```

South Africa Obs<.

```
+----------------------------
| | Unique
Variable | Obs=. Obs>. Obs<. | values Min Max
-------------+-----------------------------+-------------------------------
Baccess | 45 4,955 | 3 1 3
Inc | 64 4,936 | 7 1 8
---------------------------------------------------------------------------
```

```
         Obs<.
```

Eswatini +----------------------------

```
        | | Unique
Variable        | Obs=. Obs>. Obs<. | values Min Max
-------------+-----------------------------+----------------------------------
Inc    | 347   3,093 | 8 0   8
----------------------------------------------------------------------------
```

2. Imputed values

```
---------------------------------------------------------------------------
Kenya | Observations per m
 |-----------------------------------------------------
Variable | Complete Incomplete Imputed Total
------------------+-------------------------------+------------------
Baccess | 8054 611 611      8665
---------------------------------------------------------------------------


---------------------------------------------------------------------------------
Kenya | Observations per m
 |----------------------------------------------------------------
Variable | Complete Incomplete Imputed | Total
------------------+-------------------------------+--------------------------
Inc | 8642 23 23       8665
---------------------------------------------------------------------------------


---------------------------------------------------------------------------
Eswatini | Observations per m
 |---------------------------------------------------------
Variable | Complete Incomplete Imputed | Total
------------------+-------------------------------+-------------------
Inc | 3093 347 347 | 3440
---------------------------------------------------------------------------
---------------------------------------------------------------------------
DRC | Observations per m
 |----------------------------------------------------------
Variable | Complete Incomplete Imputed | Total
------------------+-------------------------------+------------------
Baccess | 4761 239 239 | 5000
---------------------------------------------------------------------------
---------------------------------------------------------------------------
DRC | Observations per m
 |--------------------------------------------------------
Variable | Complete Incomplete Imputed | Total
------------------+-------------------------------+-------------------
Inc | 4809 191 191 | 5000
```

```
--------------------------------------------------------------------------

--------------------------------------------------------------------------

 RSA | Observations per m

    |-------------------------------------------------------

 Variable | Complete Incomplete Imputed | Total

-------------------+---------------------------------+-------------------

 Baccess | 4955 45 45 | 5000

--------------------------------------------------------------------------

--------------------------------------------------------------------------

 RSA | Observations per m

    |-------------------------------------------------------

 Variable | Complete Incomplete Imputed | Total

-------------------+---------------------------------+-------------------

 Inc | 4936 64 64 | 5000

--------------------------------------------------------------------------
```

(complete + incomplete = total; imputed is the minimum across m

 of the number of filled-in observations.)

Source: Stata

APPENDIX E:
CHECKING FOR MULTICOLLINEARITY

Multicollinearity Checks for Africa

Vif		
Variable	VIF	1/VIF
age	26.22	0.038137
age-squared	25.93	0.038563
internet	1.82	0.549037
media	1.77	0.563450
Inc	1.43	0.700278
edu	1.40	0.712835
Loc	1.31	0.765740
sala	1.25	0.800970
Proof	1.15	0.867433
mar	1.14	0.877627
Baccess	1.13	0.886605
Advice	1.08	0.922633
gen	1.05	0.951915
Phone	1.1	0.721002
Mean VIF	5.13	

Multicolonearity Checks for DRC

vif		
Variable	VIF	1/VIF
age-squared	17.48	0.057211
age	17.37	0.057581
internet	2.11	0.473906

media	2.06	0.484986
Loc	1.26	0.794468
edu	1.26	0.796763
Inc	1.19	0.837639
phone	1.15	0.871095
Baccess	1.13	0.888433
sala	1.11	0.897402
mar	1.10	0.911004
gen	1.08	0.929119
Proof	1.07	0.937995
Advice	1.03	0.966775
Mean VIF	3.60	

Multicolonearity Checks for Kenya

vif

Variable	VIF	1/VIF
age	27.11	0.036889
age-squared	26.57	0.037636
internet	1.97	0.508672
media	1.95	0.512536
edu	1.56	0.639097
Loc	1.48	0.673989
Inc	1.37	0.728479
Proof	1.35	0.743043
phone	1.26	0.790872
Baccess	1.26	0.795525
mar	1.19	0.841818

sala	1.09	0.918951
gen	1.08	0.925859
Advice	1.04	0.961619
Mean VIF	5.02	

Multicolonearity Checks for RSA

.	vif	
Variable	VIF	1/VIF
age	31.04	0.032218
age-squared	29.82	0.033539
Inc	2.23	0.448635
sala	1.77	0.566447
internet	1.74	0.573735
media	1.64	0.609618
edu	1.40	0.714671
Proof	1.33	0.753568
Loc	1.29	0.775111
Baccess	1.24	0.809081
Advice	1.20	0.830069
mar	1.18	0.846828
gen	1.04	0.957187
Phone	1.13	0.780032
Mean VIF	5.92	

Multicollinearity Checks for Eswatini

.	vif	
Variable	VIF	1/VIF
age	35.12	0.028473

age-squared	34.68	0.028838
media	1.85	0.541160
Inc	1.70	0.589848
internet	1.66	0.602551
sala	1.63	0.614818
edu	1.46	0.686629
Loc	1.23	0.815793
mar	1.21	0.826394
phone	1.20	0.834871
Proof	1.11	0.899939
gen	1.08	0.925767
Advice	1.08	0.928768
Baccess	1.07	0.938331
Mean VIF	6.15	

APPENDIX F:

FINSCOPE QUESTIONNAIRE, DIMENSIONS AND VARIABLES

Dimension	Variable	Finscope Questionnaires Questions			
		RSA 2016	DRC 2015	Kenya 2016	Eswatini 2015
Saving	Saving with bank (svngbank)	F7_21	M1A_2	e1_29 e1_31 e1_32	SIF5A
	Saving with other financial institution (svngfinist)	F7_20	I3_4	e1_2	SIF5B
	Saving with mobile (svngmobile)	E4_5	E8_4	e1_8	SIF5I
Investment	Invest with bank (investbank)	F7_17	I3_7	e1_30	BPJ2H$A BPJ2H$B BPJ2H$C BPJ2H$E
	Invest with other financial institution (investinstitution)	H1_1	I3_4	e1_11	BPJ2H$X
	Invest in unit trusts (investrust)	K1_1		e1_	SIF5H
	Invest in treasury bills (investTBs)	F7_22	I3_1	e1_10	SIF5D
	Invest with insurance (investinsu)	H1_12	G5A_1	e1_44	SIF5F
	Invest in shares (investshares)	K1_10	I8_7	e1_9	SIF9J
Borrowing	Borrow from bank (borrowbank)	F7_14	M1B_7	e1_12	BCG4AA/B
	Borrow from other institutions (borrowinstitution)	F7_3	M1B_8_2	e1_15	BCG4AD
Bank penetration	Bank Account	F1	J1B_1	e4_1	BPJ3

			J1B_2		
			J1B_3		
			J1B_4		
			J1B_5		
			J1B_6		
			J1B_7		
			J1B_8		
			J1B_9		
			J1B_10		
			J1B_11		
			J1B_12		
			J1B_13		
			J1B_14		
			J1B_15		
			J1B_16		
			J1B_17		
			J1B_18		
	Uses a cash point card (cashpointcard)	F7_13		e4_36	BPJ1A
	Uses a debit card (debitcard)	F7_1	M1A_3	e4_34	BPJ1B
	Uses a cheque(cheque)	F7_4	M1A_1	e4_31	BPJ1C
	Has a fixed account (Fxdacc)	F7_7	M1A_6	e4_30	BPJ1E
	Has a call account (callacc)	F7_2	I2B_9	e4_32	BPJ1F
	Has a forex account (forexacc)	K1_13	M1A_5		BPJ1J
	Has a foreign account (accforeign)				BPJ1K
	Has a credit card (creditcard)	F7_6	M1A_4	e4_35	BPJ1L
	Has a bank overdraft facility (bankOD)	F7_12	M1A_10	e4_33	BPJ1M
	Has a loan account (loanacc)	G1_1	M1A_7	e4_12	BPJ1O

	Uses internet banking (internet banking)	E4_2	M3_2	e10_1_5	BPJ1P
	Uses cellphone banking (cell banking)	E5_13	M1A_11	e10_1_3	BPJ1O

Source: Researcher's own compilation

APPENDIX G:
EXPLANATORY VARIABLES

Class	Variable	Bots	RSA	DRC	Kenya	Eswatini
Demographic	Age (Age)	Q5	Resp_Age	N5	Age	DMA2
	Gender (Gen)	Q6	Resp_Gender	N4	gender_of_respondent	DMA3
	Marital status (Mar)	Q7	MaritalStatus	N2	a_9	DMA4
	Proof of residence (Proof_Res)	Q10.1 Q10.2 Q10.4 Q10.5 Q10.9		N6_1 N6_2 N6_3 N6_4 N6_5 N6_6 N6_7	N6_2	DMA5C
	Physical access (Access)	Q74.Bank.Amount	L13_3	E1_3	q3a_2	AID1BC AID1BD AID1BE AID1BG
	Location (Loc)	Location.Code	LSM_30	Urban Rural	cluster_type	HH5
Human capital	Level of education (Edu)	Q8	Education8	N3	a_14	DMA5A
	Social media (media)	Q139.6	E5_06 E5_07 E5_09 E5_10	E7_6 E7_7	f2_2	MMA14AE
	Internet services	Q139.5	E1_4	E7_3	n2	MMA14AD
	Financial advice (Advice)	Q51.1 Q51.2 Q51.3	H3		b8_19_1	
Income	Employment history (Emp)					
	salaried/not salaried (Sala)	Q9	C1_07	C4	d1_2 (salaried)	INC2AA (salar)

						INC2AB (salar)
						INC2AC (salar)
						INC2AD (salar)
	Level of income (Inc)	Q40.Amount	M6a	C7A	total_income	INC7B

Source: Researcher's own compilation

APPENDIX H:
FINSCOPE DATA SETS SECTION

Country	Proxies Availability	Country	Proxies Availability
Tanzania	11/13	South Africa	13/13
Togo	12/13	Namibia	11/13
Botswana	13/13	Nigeria	10/13
Eswatini	13/13	Rwanda	10/13
Mozambique	10/13	Seychelles	11/13
Lesotho	11/13	Uganda	11/13
Burkina Faso	10/13	Zambia	10/13
Mauritius	9/13	DRC	13/13
Cote d'Ivoire	10/13	Zimbabwe	11/13
Ghana	12/13	Kenya	13/13
Malawi	11/13		

APPENDIX I:
DECLARATION OF PROFESSIONAL EDIT

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Independent Skills Development Facilitator

Dear Mr Njanike

This letter is to record that I have completed a language edit of your thesis entitled, "Determinants of financial inclusion in selected African countries".

The edit that I carried out included the following:

-Spelling   -Grammar
-Vocabulary   -Punctuation
-Pronoun matches   -Word usage
-Sentence structure   -Correct acronyms (matching your supplied list)
-Captions and labels for figures and tables
-Spot checking of 10 references

The edit that I carried out excluded the following:

-Content
-Correctness or truth of information (unless obvious)
-Correctness/spelling of specific technical terms and words (unless obvious)
-Correctness/spelling of unfamiliar names and proper nouns (unless obvious)
-Correctness of specific formulae or symbols, or illustrations.

Yours sincerely

Retha Burger

30 June 2021