

**IMPACT OF MACROECONOMIC INDICATORS ON INCREMENTAL
HOUSING FINANCE IN SOUTH AFRICA**

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DECLARATION

I, Oladeji Jonathan D. hereby confirm that this thesis is my original work and where necessary, due credit has been given to sources in the text and listed in the references. I agree with the rules of the University of Pretoria and the consequences of not complying with them. I have given due consideration to the institutional policy on copyright. This thesis is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy at the University of Pretoria. I confirm that it has not been submitted before for any other degree or examination at any other University.

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ETHICS STATEMENT

The author, whose name appears on the title page of this thesis, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that they have observed the ethical standards required in terms of the University of Pretoria's Code of ethics for researchers and the Policy guidelines for responsible research.

DEDICATION

This work of research is dedicated to the supreme being and almighty God who has given me the strength and health to bring thought and data to paper.

To my wife who made it imperative that I live a balanced life through the research work without whom I would have lost bearing of what truly matters which is love for humanity.

To the Oladeji and Lepota families, our friends and well-wishers who have been part of this journey.

Also I dedicate this work to all the experts and professionals in the built environment who have contributed to my training and development.

SYNOPSIS AND ABSTRACT OF THE THESIS

Title of thesis: Impact of Macroeconomic Indicators on Incremental Housing Finance
in South Africa

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This research seeks to answer a question that borders on the affordability of housing finance, relative to the overall direction of the South African economy. Therefore, the study explores insight into the informal housing and spending patterns of low/middle-income groups in South Africa. Accordingly, the macroeconomic data was used to evaluate the incremental housing finance, and build a framework based on the National Housing Finance Corporation (NHFC) model in South Africa as a major contribution to a sub-Saharan African study.

To achieve the overall goal, the study employs a mixed method (qualitative and quantitative data) to assess housing finance affordability and the performance of incremental housing finance in South Africa. Specifically, data for 17 years (2003-2020) from Stat SA, NHFC, Department of Human Settlement, and Rural Housing Loan Fund were used in this analysis. Additionally, stakeholders from NHFC and HIPHousing who are knowledgeable with the workings of incremental housing finance and interface between the home finance providers and the beneficiaries were interviewed.

The study found that incremental housing finance directly addresses a housing affordability gap for low to middle-income earners in South Africa. Furthermore, it is demonstrated to be more resilient in improving access to financing for categories of homeowners who have typically not been able to afford improved housing conditions. The proposed framework

captures the current financing model that has recorded over 90% repayment rate from low-or middle-income earners. This further proves that risk classification from the formal mortgage options might have significantly excluded the poor from affordable housing finance.

The study also reports three (3) major components of an ideal incremental financing structure which are (1) institutional financing (2) funding from both private and public entities, and (3) regulation. Consequently, results show that inflation and the lending rate demonstrate significant impacts on incremental housing investment, while unemployment demonstrates the least impact on the incremental housing investment. Additionally, results of the interview with NHFC executives revealed a significant impact of the rate of unemployment; and other related macroeconomic indicators in mitigating risks of default.

Thus, it is recommended that the transition of government from housing provider to enabler should inform the establishment of apex incremental financing bodies like the NHFC funded or subsidized by the state for on-lending to retail intermediaries. Furthermore, the institution is to mitigate risk by adopting regulations and providing oversight to incremental housing finance niche lenders. It is also recommended that incremental financing should be disbursed through reliable building merchants to ensure that funding is used for qualitative homeownership. Furthermore, macroeconomic data should be collected regularly to monitor the performance of incremental housing finance funds as a risk mitigation measure.

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CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.0. Introduction

Incremental housing, also commonly referred to as self-help housing, has historically proven to be the preferred housing option across developing countries because of the overall perception of housing as lifelong process and the capital-intensive nature (Amoako & Frimpong Boamah 2017). Ntema (2011) states that this mode of home ownership, often attributed to the work of JFC Turner, has always existed as “conventional wisdom” and predates many others like mortgage, social housing, and public-private partnerships. The author further explains that JFC Turner’s advocacy for self-help housing only contributed insights to a system that has already had its roots in Africa and other developing countries outside Africa. The reason this is thriving in the developing countries is because of the failure in government interventions to provide adequate housing. Thus, individuals and communities have often devised innovative approaches to address shelter needs.

This first chapter explores the existing gaps and challenges in affordable housing finance across developing nations. Thus, the chapter is divided into eight sections including, section 1.1 which dwell on the general background to the study. Section 1.2 contains the statement of research problems. Furthermore, section 1.3 deals with the research questions that were set out and answered in the course of this research. Section 1.4 defined the principal aim and objectives of this research. Section 1.5 provides the study justification, while section 1.6 states the study scope. Section 1.7 give the organization of the thesis. Finally, section 1.8 concludes the chapter.

1.1. General Background to the Study

To discuss affordability, it is crucial to consider the primary objective of housing investment and finance. Though profit is the core investment objective, buyers and renters seek housing finance

within their purchasing power. Therefore, the need for housing financiers to achieve profitability puts a strain on a specific population category. Thus, Ferguson and Smets (2010) observed that low- and middle-income population homeownership finance seems inhibited and out of reach in most emerging markets.

Often between mortgage finance, and outright government provision or subsidies, solutions to the growing demand for affordable housing in Africa continues to be in limited supply. Roughly one billion people, or one-third of the world's urban population, live in slums (UN-Habitat, 2005), Africa being home to a large number. Financing affordable housing in African cities, therefore, requires massive capital. *“The current projection is that, without concerted action by governments and their partners, the slum population will increase by slightly more than one billion in the next 25 years to about two billion in 2030. Providing better shelter for all these will require better, more effective and sustainable financing mechanisms that truly benefit the poor (UN-Habitat, 2005).”* In contrast to the situation in the developed world, many developing countries do not have well-developed housing finance systems (Groves, 2004; Cacadac and Warnock, 2008). Thus, the need to finance housing remains critical to affordable housing delivery, especially in Africa.

The popular mortgage finance option has not had the most remarkable impact in African countries. In Nigeria, there are only 110,000 mortgages for a country of 200 million people (Reall, 2020). Similarly, Boamah (2010) reports that Ghana's Home Finance Company had only originated 4,453 mortgages for a country of 30 million people as of 2007. Like Nigeria which has an average income per capita of \$ 2,085, Ghana has an average income per capita of \$2,445.3 (The World Bank, 2021). Therefore, many Ghanaians, Nigerians, and many other residents of developing African countries cannot afford the least expensive rental

accommodation (typically costing between \$20,000-40,000), much more home ownership through mortgage finance (Centre for Affordable Housing Finance in Africa (CAHF), 2021).

In South Africa, National Credit Regulator (2014) reports that it has recorded a significant fall in new mortgages from more than 100,000 per quarter (in the fourth quarter of 2007) to approximately 33,000 per quarter by the second quarter of 2009. Furthermore, Business Tech (2021), reports that 40,000 mortgages are provided quarterly on average. These numbers declined to 12,000 in the second quarter of 2020 during the pandemic but recovered to 53,000 in the second quarter. When compared with South Africa's approximately 3.7 million housing gaps, which is estimated to be growing at 178 000 annually, mortgage finance is not performing well in the pursuit of housing affordability as is the case in other countries across Africa.

On the other hand, Gardner, Lockwood, and Pienaar (2019) report that the South African mortgage finance and government-subsidised housing system has recorded some success in delivering affordable housing. However, the study also points out that during the past four years, there has been no change in the delivery figures for the primary subsidised housing goods. The Breaking New Ground (BNG) homes, Community Residential Units (CRU), and Finance Linked Individual Subsidy Program are all included in this data (FLISP). Housing supply numbers specifically decreased from 180 000 to 160 000 units annually between 2015 and 2019.

Similarly, Charlton (2010), Donkor-Hyiaman (2015), and Marias and Cloete (2015) suggest that mortgage financing has failed or declined in Africa compared to the success it has received in other parts of the world, like the UK and USA. Though these researchers adduced several reasons for the decline, poor land tenure and titling, inefficient formal land registration systems, weak legal systems for using land as collateral, low income, unstable macroeconomic fundamentals, and poor credit information were prominent. Furthermore, these reasons

potentially make it difficult for African households to access mortgages leading to homeownership. Relatedly, real estate investors within the region are increasingly becoming sceptical about committing funds (equity, debt, and equity and debt) to housing development or purchases.

However, in the report of the Centre for Affordable Housing Finance in Africa (CAHF) and South African Cities Network (SACN) (2014), it was observed that the growing disinterest by investors in the affordable housing market is not justified. According to the report, the non-performing loans in the affordable housing market are on the same level as those outside the affordable market range. This further implies that the disinterest of lenders in the affordable market is not a result of higher risk but the difficulty in understanding this market. Accordingly, the South African Cities Network (SACN) (2014) further suggests that deeper knowledge of the alternatives and opportunities for buyers seeking informal finance will increase investment.

In the developing regions like Africa, housing financing is usually informal. It accounts for over 90 per cent of housing acquisitions through self-help approaches of incremental housing (Donkor-Hyiaman, 2015). While the practice of incremental self-help housing is predominant in developing countries because of the poor economic status of households, Gilbert (2000) reports that formal lenders are hesitant to lend funds to low-income families in Bogota, Colombia. Thus, it was observed that profits could be made if some of the practices and procedures of formal institutions were aligned to incorporate incremental self-help housing (Also see, Teye, Teye, and Asiedu, 2013; Donkor-Hyiaman, 2015; Iyandemye and Barayandema, 2018).

In South Africa, self-help is officially called the People's Housing Process (PHP) (Ntema, 2011). The government introduced the PHP in 1998 to assist communities with self-help construction of a house on a conventionally serviced site, in contrast to the

developer/contractor-supplied housing that has made up the bulk of the delivery (Tomlinson, 2006). There is a need to note the growing recognition in extant literature for incremental housing as the most affordable housing supply option in Africa (Muller, and Mitlin, 2007; Ferguson, Smets, and Mason, 2009). This is indicative of the fact that mortgage finance which is also known as bank loans are often issued for fully developed housing units which are not affordable and thus undesirable for low-income groups in Africa. As more Africans look to the incremental model of home ownership, it's important to devise alternative finance structures that would encourage the formal mortgage lenders to fuse into the platform.

Previous studies including Ferguson and Smets (2010) in India; Habitat for Humanity (2014) in parts of Asia, Africa and Latin America; Quansah and Debrah (2010); Teye, Teye and Asiedu (2013); Akenga, Olang, and Galo (2015); Prime-Stat PVC Ltd. (2018); and Donkor-Hyiaman (2018) in Ghana; Poon and Garratt (2012) in the United Kingdom (UK) all concentrated on formal mortgage financing in the context of growing urbanization and the attendant challenges of poor housing affordability. Relatedly, there are other studies including Groves (2004) in the UK; Kofi, Isaac, Maxine and Asiedu (2013) in Ghana; Gilbert and Gibb, (2018) in Australia, that focused on housing supply challenges. These studies considered the impact of land access, urban growth, racial disparities, and institutional changes on supply.

In South Africa, the known studies including Goebel (2007); Gardner (2008); Ntema (2011); Marais and Cloete (2017); Gardner, Lockwood, and Pienaar (2019) examined housing microfinance opportunities, subsidy programs, the relationships between the private and public sectors in housing finance with a view to improving policy directions. The current study extends the body of knowledge in the South African housing markets by examining the impact of macroeconomic variables within an institution providing incremental finance. Additionally, relative to the previous South African studies, this study is different because of its focus on an

already existing framework providing incremental housing intervention with an almost equal consideration of public and private interests.

Considering the role that macroeconomic stability plays in investors' decisions, it is surprising that studies have sparingly addressed the impact of macroeconomic indicators on the affordable housing market. Thus, it is imperative to understand the direction of the overall economy and how this might affect the value of investment in other innovative affordable housing finance solutions including self-help.

1.2. Problem Statement

The popularity of incremental housing across Africa reflects a fast growth in urban population, poorly performing mortgage finance systems, and a greater reliance on personal savings for building projects (Ngcuka, 2010). To address this need, new alternative financing, that is more suited to the staged development of housing, is required. This study examines how macroeconomic factors contribute to the creation of risk-resistant financing arrangements for new dwellings.

The World Bank Group (2015) states that a significant amount of household income in Africa must be spent on housing, which adds to the continent's enormous housing shortage. This imbalance is largely attributed to the high cost of supply, which is represented by the high cost of construction, low income, the challenge of securing land, the lack of infrastructure, and the difficulties in obtaining financing. Figure 1 shows a comparison of income levels across 31 African countries and cost of a newly built house. This illustrates the affordability gap experienced across the continent. In other words, even if housing supply were to increase to match the housing gap, the financing structure relies too heavily on income that meets short-term funding requirements where investors may be risk averse. According to World Bank Group (2015), housing is

considered “affordable” if households spend no more than 30 percent of income on rent or mortgage service plus other housing costs (such as utilities). Therefore, the illustration in Figure 1 is indicative of a huge affordability gap.

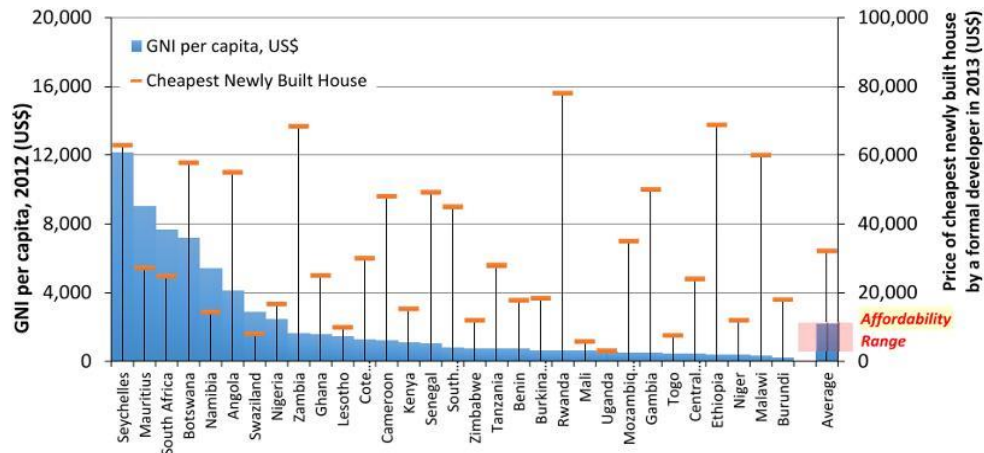


FIGURE 1.1: RELATIONSHIP OF INCOME TO HOUSE PRICES IN SSA (CENTRE FOR AFFORDABLE HOUSING FINANCE IN AFRICA (CAHF), 2012).

The implication of this is that most formal finance options do not truly represent the challenges that low-income houses face due to generally low disposable income (UN-Habitat, 2005). In Figure 1.1 above, the average cost of the cheapest newly built house significantly exceeds the average income per capita across most African countries. Government supplied housing and finance are, therefore, often in high demand but considered unsustainable for low-income populations.

According to Gardner, Lockwood, and Pienaar (2019), the performance of government subsidized mortgage finance has not shown as much promise as the public and private sector seek to address the growing demand for affordable urban housing. Sharam, Moran, Mason, Stone and Findlay (2018), also hold that government subsidies give an implicit guarantee for supply. However, it has been established that this method of financing is unsustainable in the long-run and for large-scale affordable housing finance.

Thus, governments across the world have moved from outright provision of affordable housing units and slum upgrades to an enabling approach. This new role sometimes takes the form of

subsidized mortgages, free land provision for developers and several other related interventions. However, Watson and McCarthy (1998) like Marais and Cloete (2017) believe that the government's efforts to provide an enabling environment and stimulate the private sector in the provision of affordable housing finance for the low and middle-class households is impeded by the unavailability of information relevant for financiers and investors. Therefore, there is more reliance on large amounts of subsidy-based mortgages where private investors and banks consider the target market too risky.

According to Gardner, Lockwood, and Pienaar (2019), subsidised housing contributed an estimated 50 percent to the economic impact of South Africa's entire housing construction output in 2017, playing an important role in stabilising a shrinking construction sector. Also, the report shows that subsidized housing accounts for half a percent of South Africa's GDP. As Gardner, Lockwood, and Pienaar (2019) find, households have come to rely heavily on subsidized housing and would rather not invest their private funds. This makes the South African housing finance market even more risky for private investors.

Ferguson, Smets, and Mason (2009) also hold that government subsidy per poor family is just about one-third to one-quarter the amount necessary for adequate housing. So, on the one hand, there is higher demand for subsidy finance but on the other hand, subsidy financing struggles to meet up with the housing needs. Also, in a lot of cases, the subsidy programmes have only been affordable to the upper-middle class and not the low-income groups. UN-Habitat (2005), and Gardner, Lockwood, and Pienaar (2019), also argue that despite the potential of housing subsidies, it puts immense pressure on public resources to the disadvantage of other public infrastructure. This study believes that the trend towards incremental housing must be supported by a more sustainable finance framework.

Constituting a major challenge to formal finance options in developing economies is the prevalence of incremental/informal housing developments among lower income groups who seek home ownership. A lot of private and public sector initiatives seem to have largely neglected the predominant outlook of homeownership in the form of self-help and incremental housing. Due to the informal nature of incremental housing, it is difficult for prospective homeowners to access formal mortgage finance. Consequently, Fuchs (2018) concluded that the majority of Africans, who cannot afford the cost of formal mortgage finance, live in informal, uncompleted structures while turning to other forms of finance .

Most households typically rely on meagre savings to incrementally build over what could be a long period of time thereby locking up latent capital. These homeowners have turned to alternative finance options like microfinance, pension-backed mortgage finance and personal savings as mortgage finance remains unaffordable for most (Donkor-Hyiaman, 2015). Despite the increased demand for less formal housing finance, most Africans struggle to still finance housing needs. This is because hesitant lenders and financial institutions seem to struggle with satisfying a profit objective while addressing housing finance affordability. As Gilbert (2000) describes it, *“formal lenders are put off by the low profitability of lending to the poor...”*.

Bondinuba and Adjei-Twum (2016) agree that providing low-income housing through housing microfinance has the potential of leveraging both formal and informal finance by harnessing and partnering MFIs, the state, and the private sector.

For these alternative solutions to attract investors, reliable information about affordability of finance and household capacity to pay back microloans becomes critical. Understanding the underlying relationship of the macroeconomy to the income levels of low-income households becomes important for investors. According to UN-Habitat (2005), the possibility of financing the housing demand for developing countries depends on the level of future economic growth and

development. The study holds the position that a country's ability to generate employment and incomes for rising populations at an augmented rate, will determine how well prospective homeowners can attract and mobilize the savings and investment to finance housing and infrastructure services.

Goebel (2007), in identifying the causes of unsustainability in South Africa's low-cost housing strategies, also highlights the role of neo-liberal macroeconomic policies. This study considers exclusionary government policies, the high rate of unemployment and underfunded low-cost housing as reasons for slow and inefficient housing delivery. A major debate against market-based finance options for low-cost housing is that risk-return considerations of financing inform higher interest rates for low- and middle-income households who represent more risk. Financiers are torn between profitable choices and social impact considerations. As this market is even riskier to predict, cost of capital unavoidably becomes higher with shorter payback periods.

These conditions are not favourable for low-income households. The quest for affordability in African or emerging markets requires that financing is designed within the framework of the overall economy as this provides more representative evidence of the risk and return potentials. Further to this end, this study investigates the economic drivers of affordability which could justify the argument for inclusion of low-income housing investment portfolios targeting the continent. As alternative methods of Housing Microfinance (HMF) become popular, stakeholders must balance profitability against the need for quality low-cost housing finance. This is necessary as many households rely on personal savings for building incrementally over long periods of time. According to Nilsson (2008), a lot of African economies are also unable to support the financing of housing for growing informal sectors. Due to the large spread of corruption, bad governance and barriers to entry, many individuals and businesses prefer to operate outside the

institutional frameworks of the country. This results in a situation where many low-income populations are not adequately banked, have no credit history and as such cannot access formal finance options. To make the informal or incremental housing system adequate, finance systems must account for the peculiarities of local economies and the insight that the macroeconomy provides with respect to present and future household income levels. Housing financiers can potentially cater for these unique low-income markets by providing greater market insights useful for private investors. Also in his study, Nilsson (2008) reveals that the informal sector is excluded from formal sector mortgage for reasons such as:

1. Unaffordable debt services for housing finance.
2. Inability to sustain monthly repayment in the long-term.
3. A lack of reasonable collateral.
4. The high-risk status.

Investment comes with an expectation of returns. Therefore, finance is justified when the households can generate a positive cash flow to support debt repayment or returns to equity holders. Considering the objective of profit, investment in affordable housing finance might not be as desirable as the typical mortgage options which effectively exclude a large population in Africa. However, there is a need to bridge the gap between prospective homeowner's capacity and the cost of finance.

Housing Finance International (2009) recognizes the role that institutional support plays in the affordability gap across South Africa. The study suggests that if South African low-income households will be serviced adequately, then housing finance in the form of subsidies must be deepened and provided sufficiently. Also, the report recommends microfinance and microlending as an alternative that ensures inclusion of all market segments in finance

processes. Similar recommendations are made by Bondinuba and Adjei-Twum (2016) for the Ghana housing microfinance. Nilsson (2008), as against the suggestions by Housing Finance International (2009); and Bondinuba and Adjei-Twum (2016) hold the opinion that governments must rather play an enabling role in creating conducive macroeconomic conditions for financial institutions to include low-income segments. However, these macroeconomic drivers of affordable housing finance are not explored further.

Boshoff (2010) has done a brief overview considering macroeconomic variables that drive property demand, and his study gives a strong basis for pursuing this path. Boshoff (2010) states that:

“...GDP, as a primary indicator of economic growth, also plays a large role in the determination of disposable income and the subsequent spending behaviour of households.”

Boshoff (2010), however, doesn't consider the impact of these macroeconomic variables on the cost and affordability of financing or investment by private developers especially for the low-income target market. To further extend understanding of the investment decisions and the opportunities or challenges to financing within the affordable housing sector, this study identifies macroeconomic variables that have historically influenced these decisions. In the context of incremental housing, this study investigates the macroeconomic patterns influencing decisions to extend financing to low- to middle-income groups in South Africa.

To understand the challenges of financing low-income housing, it's important to examine the supply side and demand side of affordable housing financing systems. If partnerships between the private and public sector would resolve the housing shortage in African economies, then the economic consideration for financial planning is imperative for policymaking.

This study looks into the macroeconomic factors that influence housing affordability for South Africans with low incomes. Financiers and investors in affordable housing use this as a foundation for investment decisions. Additionally, it aims to ascertain how macroeconomic factors affect the performance of mortgage financing among low-income groups and, in a similar vein, the performance of alternative solutions aimed at the South African market for affordable housing. In the end, this study looks at the connection between economic growth indicators and how it affects affordable housing for low- and middle-income groups.

1.3. The Research Questions

This study aims to provide an answer to a question about home finance affordability in light of the general state of the South African economy. The primary research topic thus aims to identify and investigate the macroeconomic indicators that drive incremental financing for low- and middle-income households in South Africa. Following from this main inquiry, the following supporting inquiries were addressed in this investigation:

1. Have the mortgage or formal housing finance challenges influenced investment in incremental housing finance in South Africa?
2. What performance risks do incremental housing finance solutions in South Africa face?
3. Do macroeconomic risk indicators impact the adoption of incremental or affordable housing finance in South Africa?
4. To what extent do the South African macroeconomic indicators impact the growth of incremental housing investment for low and middle-income households?
5. What model explains financing incremental/self-help housing in South Africa?

1.4. Aim and Objectives

This study seeks to evaluate macroeconomic drivers of housing affordability for the low- and middle-income population with a focus on incremental housing finance in South Africa over the period 2000-2020. The main motivation is to monitor the implications of government housing policies within the years under review, so that a sustainable house financing framework could be developed for the South African housing market. The aim stated above, is achieved through the following objectives, including to:

1. Determine if the formal housing finance challenges are influential in the development of incremental housing finance in South Africa.
2. Identify performance risks for existing incremental housing finance.
3. Determine the role played by macroeconomic factors in innovation and adoption of self-help or incremental affordable housing finance across South Africa.
4. Evaluate the impact of individual macroeconomic indicators on the growth of incremental housing finance options for the low and middle-income section of South Africa.
5. Develop a hybrid model for financing incremental/self-help housing in South Africa.

1.5. Justification

Several studies try to find a bridge between property investing and affordable housing (Standish, Lowther, Morgan-Grenville, and Quick, 2005; Gaspar, 2017; Sharam, Moran, Mason, Stone, and Findlay, 2018). These authors report a growing demand for affordable/incremental housing, over-reliance on government funding, and the formal mortgage finance systems that are often inaccessible to low- and middle-income groups. However, these studies seem to gloss over the role that the macroeconomy plays in innovation and adoption of new housing and finance approaches thus leaving a huge policy gap. Furthermore, there's little empirical data regarding opportunities or challenges to investment that specifically targets low-income groups.

While Burgess (1978); Watson and McCarthy (1998); Muller, and Mitlin (2007) argue that the solution to affordable housing finance lies in increased government spending, such strategies fail to consider that they also inadvertently put pressure on public funds for other infrastructural projects (Gardner, Lockwood and Pienaar, 2019). Other researchers have suggested that access to increased private financing would be instrumental to improving incremental housing finance in emerging markets like South Africa (Mehlomakulu, and Marais, 1999; Pugh, 2001; Groves, 2004; Marais, Ntema, and Venter, 2008). To private investors, however, low- and middle-income homeowners are frequently seen as high-risk and are as such unappealing. Akenga, Olang, and Galo (2015) were able to classify macroeconomic risk as a major factor that impedes mortgage performance. Furthermore, Klug, Rubin, and Todes (2013) found that the risk that affordable housing represents for investors in the South African market is often mitigated by partnerships with government. The enabling role of government is, therefore, important as the majority of African households rely on incremental housing development which doesn't conform to the formal mortgage finance model (Groves, 2004).

Berge, and Jing (2010) used a Qualitative Analysis of semi-structured interviews in Botswana to investigate the mortgage market. Datta, and Jones (2001) also pursue an empirical study of Botswana and Mexico to investigate how households fulfil their housing finance needs. They particularly advocate investigating housing as an asset for low-income households instead of just poverty alleviation. They also identify a gap in literature regarding the incremental process of housing, finance, and attendant risks. Besides from this, other empirical studies that have looked at housing finance in Africa have largely focused on Mortgage finance. Examples include Nyasulu, and Cloete (2007); Struyk, et al (2010); Agao (2014); Avenge, Olang, and Galo (2015). Donkor-Hyiaman (2015) also employed a multi-method research and investigated how markets enable mortgage finance and the reasons for wide variations in mortgage finance. However, studies like Wilkinson (1998); Gardner (2008); Ntema (2011); Lochner, John, and Anita (2015) employ case study analysis and limited quantitative analysis to address the uniqueness of markets where empirical data is limited. This study similarly adopts the case study approach considering that South Africa's incremental housing sector requires a robust approach that considers unconventional data sources like archival reports and internal documents.

This study therefore seeks to explore the impact of macroeconomic drivers on incremental housing finance investment in South Africa. Specifically, it seeks to explore the potentials and opportunities in the National Housing Finance Corporation's efforts at servicing the low- to middle- income target market. Increased understanding of the South African housing market is bound to bridge the gap between affordable housing demand and supply while developing a sustainable financing framework.

The results of this study provides a basis for explaining the performance of affordable housing investment while also allowing stakeholders to anticipate the future of incremental housing

finance using macroeconomic data as a risk assessment tool. Several studies in affordable housing and policymaking focus on various factors like race or ethnicity, social class, macroeconomic stability, and income level that might impact housing affordability. Muellbauer, and Murphy (2008); Boshoff (2010); Bondinuba and Adjei-Twum (2016), also provide limited research into how macroeconomic factors affect affordable housing and finance. These studies make loose reference to drivers of house prices in the UK such as income, the housing stock, demography, credit availability, interest rates, and lagged appreciation. However, like a lot of studies, there's a research gap on the role that the macroeconomy plays in the affordability of existing formal financing options and the consequent resort to other informal options. This research identifies, more specifically, macroeconomic drivers of affordability and finance for affordable housing in South Africa as a means to increasing investor confidence.

Research into the macroeconomic considerations in financing the incremental affordable housing market forms a critical part of this investigation. According to Boshoff (2010), market prices are inclined to respond to affordability, and macroeconomic data can be used to anticipate risk and its impact on affordability. Akenga, Olang, and Galo (2015) identify macroeconomic risk as an impediment to financing but like Mehlomakulu, and Marais (1999); Pugh (2001); Groves (2004); Marais, Ntema, and Venter (2008), these studies don't address macroeconomic risk or its impact on the increasingly popular self-help/incremental housing model. Therefore, this research importantly seeks to help lenders and investors understand how macroeconomic influences impact on low- and middle-income homeowners seeking incremental housing finance. As such policy makers and commissions like the Department of Housing (now called the Department of Human Settlements), Financial Sector Charter Council (FSCC), the Banking Association of South Africa (The Banking Association), and the Developmental Financial Institution (DFI) benefit from investigations of the interactions between the macroeconomy and affordable housing finance. This study benefits stakeholders

by providing a focused examination of government institutional housing finance efforts, in collaboration with the private sector in reference to how they are facilitated or impeded by the macroeconomy. The NHFC case study further benefits these organizations by providing insight into the low- income housing finance sector and how investment can be channelled to piloting both social and economic growth. These stakeholder organizations also discover new approaches to risk mitigation in the incremental housing finance sector which provides more confidence in their investment with the NHFC.

1.6. Scope

This study is focused on South Africa which is the second largest African economy. According to the Centre for Affordable Housing Finance in Africa (2022), South Africa is the second largest economy in Africa, with a Gross Domestic Product (GDP) of R6.8 trillion (US\$418 billion) and a population of 60 million. The question of affordable housing is a global concern and more so in Africa where effective finance systems are still grossly lacking. Examining the inadequacy of finance in all emerging economies across Africa would require the time and resources beyond the scope of this investigation. Furthermore, the primary study investigator is based in South Africa which makes access to South African data easier than any other country in Africa.

South Africa has a multi-racial and multicultural society, and it is home to people of varying economic classes. A survey of National Housing Finance Corporations (NHFC) executives and the work in incremental housing finance provision was conducted. This selection was done to consider the impact of the National Housing Finance Corporations NHFC which provides incremental finance instruments targeting households with incomes below R7, 500. The focus on low- and middle-income groups is informed by the target market that incremental housing products are designed to address within the institution. According to the National Housing Finance Corporation (2020), the institution's mandate is to deliver affordable housing

specifically for low-income households. The study focuses on this gap which the state-funded institution has identified in South Africa.

According to Stat SA the manufacturing sector, finance, real estate, and business services sector form some of the most important parts of South Africa's Growth Story since independence. South Africa is recognised as developing economy, and it ranks 113th on the Human Development Index (HDI). It ranks the seventh highest on the HDI in Africa. The World Bank considers South Africa a newly industrialised country with the second-largest economy in Africa. It would be impossible to take audit of all finance options available to low- and middle-income households across Africa. The results of these personal savings, selling of assets and remittances from relatives abroad would constitute a wide scope of study and investigation. The focus of this study is on affordable housing options in South Africa that are available for incremental housing or microfinance. Several reasons have been adduced for the failure of mortgage and subsidy finance for affordable housing in emerging markets (Nyasulu and Cloete, 2007; Nyanyuki and Omar, 2016; Iyandemye and Barayandema, 2018; Anacker, 2019). Some of these reasons include:

1. The inability of households to make up savings for down payments;
2. The lack of enthusiasm for private equity contribution to subsidy programmes;
3. Spiking of interest rates and unfavourable macroeconomic conditions.

The pricing of housing is typically seen as a simple function of supply and demand factors with the role of the economic players hardly investigated. However, in this study, the focus is on the impact of macroeconomic indicators on the affordability of housing in South Africa to understand the dilemma of investment and finance for affordable housing in Africa.

Similar studies in west Africa like Quansah, and Debrah (2010); Teye, Teye and Asiedu (2013), have looked at indicators like GDP, Interest rate, and unemployment. They state that a stable macroeconomy influences housing finance. This study seeks to ascertain these positions using South African data as a means to improve knowledge on how these indicators impact the housing finance market. The study only considered data available for the past 20 years. This is because actual homeownership and asset generation as part of welfare to the poor only featured in the 2000s within South Africa (Marais and Cloete, 2015). Also, the study focused on macroeconomic influences on affordability despite the very many other political and social influences. The scope of this research doesn't include such unquantifiable influences on affordability as these would be best addressed speculatively. Due to the constraint of time and limitations of direct contact, the study might consider existing data pools rather than in-person interviews. It also prioritizes the use of electronic communication for information-gathering considering that the effects of the 2020 global pandemic may spill-over into the research period.

1.7. Organization of Report

The first chapter of this research provides a background to the problem under investigation. Chapter 2 is a review of relevant literature including a theoretical and conceptual framework for the research. Chapter 3 considers the methodology for the research and the data methods that are applied. Chapter 4 includes a data report and discussion of the analysis done. Chapter 5 provides inferential discussion of the analysis and recommendations for further research.

1.8. Chapter Conclusion

This introductory chapter provides an overview of the problem that the research seeks to address in respect to housing finance affordability in South Africa. It also considers the research questions,

aims and objectives, justification, limitations, and scope of the study. The next chapter reviews previous studies that explore the gaps in research that this study hopes to fill.

CHAPTER 2: LITERATURE REVIEW

2.0. INTRODUCTION

This literature review examines the concept of housing finance affordability and how the macroeconomy impacts low-income households' ability to finance housing. This literature review takes a thematic approach to examining theories of housing finance and affordability. This is followed by a conceptual framework. A thematic approach is embarked upon for the conceptual framework. The first section 2.1 considers global literature on the concept of housing. The second section 2.2 evaluates the mortgage/formal housing finance framework and its performance in Sub-Saharan Africa. Additionally, a comparison is drawn between the global and continental outlook. The third section 2.3 considers studies of incremental and innovative financing frameworks, especially with a view to understanding the role in achieving affordable housing finance in Africa. Section 2.4 looks at implementation gaps of incremental housing finance frameworks in Africa. The fifth section is 2.5 which models the government-assisted incremental housing finance framework as a proposed solution. Section 2.6 considers economic theory and the role of the macroeconomy in driving housing finance affordability in Africa. Section 2.7 provides a summary of major theoretical frameworks guiding housing affordability approaches. This chapter collectively reviews the methodology within the literature with a view to identifying gaps and challenges to developing a suitable housing finance framework for SSA and within the South African housing finance context.

Some of the questions the review seeks to address include:

1. Have the mortgage or formal housing finance challenges influenced investment in incremental housing finance in South Africa?
2. What performance risks do incremental housing finance solutions in South Africa face?

3. Do macroeconomic risk indicators impact the adoption of incremental or affordable housing finance in South Africa?
4. To what extent do the South African macroeconomic indicators impact the growth of incremental housing investment for low and middle-income households?
5. What model explains financing incremental/self-help housing in South Africa?

Figure 2.1 is a simple illustration of the financial innovation ecosystem for affordable housing pursued in this study. This helps to keep the direction of the literature review in perspective for the reader. Homeowners seeking affordable housing solutions look to incremental housing while considering formal and informal options. This is a precursor to financial innovation by lenders.

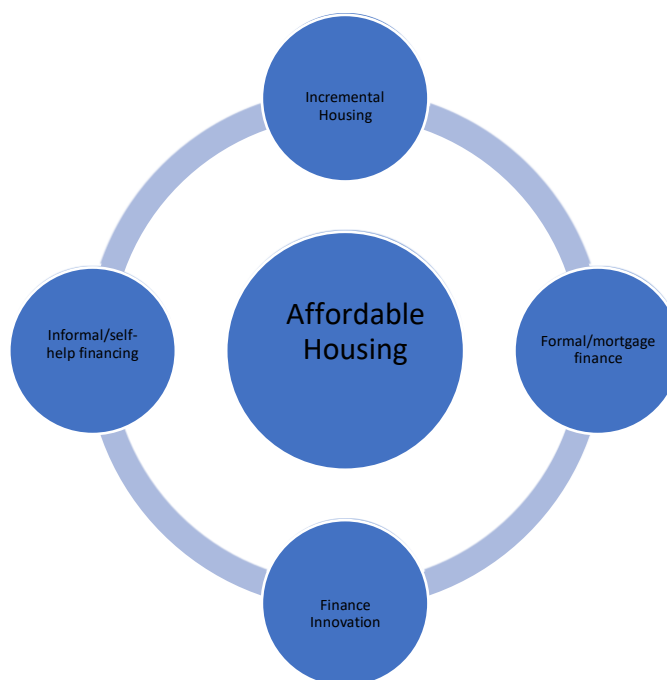


FIGURE 2.1: AN AFFORDABLE HOUSING FINANCE ECOSYSTEM

2.1. Formal Housing Finance Challenges in Developing Economies

Focusing on housing affordability, Li (2015) gives a detailed account of housing affordability and what the author believes should be the future of research. The author believes that a more empirical direction is needed to capture large sample datasets while investigating the socio-economic impacts of housing affordability. Li (2015) carried out a literature survey of 112 journal papers written between 1990 to 2013. According to the review paper, some of the most researched themes in affordable housing can be grouped into issues of housing affordability and measurement including the definition and measurement of affordability, housing poverty, affordable housing, impact of planning and zoning, econometric analysis of housing affordability, and housing policy. There are several significant knowledge gaps identified by the author which include the need to contextualize affordable housing for developing economies.

With so little research focus or interest on Africa, it is even harder to find a concise definition of what affordable housing would mean when considering the continent. Given the need to review the performance of mortgage finance in achieving housing affordability, Li (2015)'s study is significant in setting the tone for discussing what is affordable and what is not. This thesis extends the understanding of this subject by addressing specifically macroeconomic indicators of affordability for housing finance in the African context.

In another study of the concept of housing affordability, Stone (2006) describes affordability as an expression of the subjective social and material experiences of people, constituted as households, in relation to individual housing situations. Stone (2006), on one hand explains that affordability can be seen as a measure of a single household to address housing needs as against other non-housing needs. However, the study also believes that for the sake of policy making, affordability must be measured on scale using analytical and normative approaches. Considering both the subjective, analytical, and/or normative approaches to housing affordability, housing

affordability can also be seen as access. By virtue of the perception of economic performance, and by extension the household, access to finance could be easy, flexible, rigid, or difficult.

Stone (2006) recognizes the inherent problem of not measuring affordability of housing against any clear standards. The study holds that who pays more and who pays less than is realistically affordable is not an arbitrary reality but is correlated with economic and social circumstances. The study's argument for the residual income approach, despite the suggestion that it improves on the simple ratio concept, depicts even further the great measure taken to provide mortgage financing to low-risk, high income groups. In fact, his argument for this approach is that it "does not require econometric analysis or the generation of new data." This study hopes to introduce empirical data on innovative approaches to financing affordable housing and achieving greater access for low-income groups in emerging markets.

Pugh (2001) extends the studies on housing affordability in the context of supply or development, that is budget-led instead of provision that is conforming to professionally designated standards of housing. The author suggests that housing must be addressed as a whole sector instead of individual elements of private or public actors. This approach to affordability further implies that standards of utility and infrastructure have to accommodate low-income household realities. This is important because most of these households allocate 65 to 85 percent of spending for food and subsistence. Thus, housing is only affordable when the excess of the low-income household spending can accommodate housing needs. Other similar definitions of housing affordability can be seen across literature including Wallace (1995); Chaplin, and Freeman (1999); Hegedüs and Struyk (2005); Chen, Hao, and Turner (2006); Nyasulu, and Cloete (2007); Iyandemye and Barayandema (2018);.

An investigation of both the developed and developing world indicates that housing affordability is generally described in terms of price to income ratio. Also, there seems to be a

lot of economies, policies and housing finance frameworks that believe that mortgage finance offers a possible solution to this problem of unaffordability. Mortgage finance offers prospective owners an opportunity to spread a purchase over a short or long-repayment term. This inherently connotes affordability for people who may struggle to pay once-off for property purchase. However, several reports have shown that the mortgage finance process has only served the high-income population and a limited number of middle-income people. According to Hawtrey (2009), mortgage finance of developer-built units served a small upper-middle class. Furthermore, the remaining population seems to be marginalized from economic growth and unable to afford quality housing.

Also, it seems that in a lot of the cases where mortgage finance has recorded some success, it is with the understanding that this cannot be replicated in developing economies where income levels are lower (See Nyasulu and Cloete 2007; Nyanyuki and Omar 2016; Iyandemye and Barayandema 2018; Anacker, 2019). In Malawi, Nyasulu and Cloete (2007), discovered that the average mortgage is about 150% above the average income. Also, the ratio of average house price to annual income is more than 5, and thus considered to be unaffordable for more than 50% of households living in urban areas.

Wallace (1995) is a chief proponent of one of the earliest definitions of affordable housing. Wallace states that, *“Although affordable housing has no official definition, a widely accepted implicit definition is that monthly housing costs in adequate housing should be no more than 30 percent of house- hold income.”* Despite all the government’s efforts to assist households to close the affordability gap, a lot of low-income households in the United States were still considered shelter poor. Wallace suggests that factors that motivate this gap include the housing cost, inefficiency of the tax credit approach, and the inadequate supply of mortgage finance. Like Wallace, a lot of

studies suggest that increasing mortgage finance would reduce the cost of capital; however, there's evidence that this may not be the case as can be seen in Ryan-Collins (2019).

Furthermore, Hegedüs, and Struyk (2005) argues that improving mortgage loan accessibility was bound to improve housing affordability. The authors designed a housing affordability index (HAI) as the percentage of average housing that can be purchased by a household with the income defined above with a loan under typical terms, provided the loan-to-value ratio is 80 percent and the maximum monthly payment is 33 percent of the household's income. This model recognizes the definition of housing affordability as housing that is attainable when only one-third of household income is required to attain it. It also define housing affordability as a function of access to the appropriate mortgage instrument for this purchase. This study's position on affordability is that mortgage finance frameworks might increase housing access but will never be able to close the gap between income and the housing gap. This phenomenon is also described by Ryan-Collins (2019) as the housing–finance feedback cycle.

Housing affordability as a concept should also be considered from the end-user's perspective. Prospective homeowners must determine what affordable housing means to them. This perspective draws from John F.C. Turner's theories advocate assisted self-help housing, as the most affordable housing option in developing economies as against the formal options like mortgage finance Ntema (2011). Turner committed a great deal of his work studying squatter settlements and building his theories for housing policy. Turner viewed self-help housing as related to deep human aspirations, and the researcher expressed these using ideas like 'freedom to build', 'housing by people', and 'housing is a verb'. Mortgage finance as adopted from a lot of developed economies does not reflect this freedom for a lot of prospective owners who are expected to purchase ready-developed housing. Contrary to most public housing proponents, Turner's view of housing saw the need for agency on the part of the end-users. It placed

emphasis on cost recovery, affordability, and replicability. This view of affordable housing does not concentrate only on the cost of housing but what housing represents to the users. It considers affordable housing to be one that allows proximity to infrastructure, utility, work opportunity, and is fitting to unique lifestyle requirements. This study tackles housing finance needs and argues that increasing mortgage finance isn't sufficient for addressing affordability needs in developing economies.

2.1.1 The Challenges to Providing Formal Financing for Low-Income Groups

Finance plays a vital role in housing provision globally and across Africa. The housing deficit experienced across Sub-Saharan Africa can be connected to several issues including poor access to financing and unnecessary focus on mortgage/formal financing. Mortgage involves the pledging of property to a creditor as security for the payment. Thus, the lender holds the title to the borrower's property until the debt is completely paid up (Struyk, *et al.*, 2010). Financial institutions involved in mortgage lending use investors' money to lend to those who want additional funds to finance house purchases or construction (Nyasulu and Cloete, 2007). Often the lender requires some risk assurance in form of collateral like holding on to the deed certificate till loans are fully repaid.

The criteria for a mortgage approval are designed to ensure profit-making for the financial institution and lenders. This objective may not particularly align with the affordability needs of borrowers. This is because the prospective homeowner's income and other criteria set by the bank is employed to assess default risk and an ability to repay. In many African economies, income is too low for most people to be eligible for mortgages. This adds to the growth of housing deficit (United Nations Human Settlements Programme, 2005).

Therefore, as population and urbanization expansion continue uncontrolled, the lack of access to finance by a majority also grows. Considering the popularity of mortgages in housing finance research, diversifying, and exploring innovations for housing finance needs a clear agenda. It is important to consolidate how financing can be improved to bridge the divide between the lender and prospective homeowners. As far back as the early 90s, developed economies like the United States have been faced with the challenge of providing affordable housing to low-income groups. Yet, this affordable housing gap has continued to grow even with the modifications of mortgage finance (Wallace, 1995; Cacdac and Warnock, 2008).

FIGURE 2.2: GLOBAL MORTGAGE FINANCE PRODUCTS (ADAPTED FROM CACDAC, AND WARNOCK, 2008)

	The average length of the contract (years)	Estimated Average LTV (%)	Average Max LTV (%)	Fixed or variable interest (Mode)
Africa	23	-	90	Variable
Eastern Europe	23	50	85	Variable
Emerging Asia	22	73	84	Variable
Latin America	21	90	83	Variable
Middle East	14	-	80	Variable
Europe	25	74	95	Variable
North America	28	68	98	Fixed
Pacific	27	78	83	Variable

As seen in Figure 2.2, the mortgage finance framework in Africa does not show any significant difference compared to the developed countries. Compared to the Middle East, Eastern Europe, and Emerging Asia, Africa seems to have a mortgage finance system that offers high Loan-to-Value (90%) and a 23-year contract period (provide source). One can infer that the mortgage data collected in Africa is only restricted to a small population of high- and middle-income people. Thus, the information in Table 2.1. only proves further that deepening mortgage finance or increasing the supply of mortgage finance may not be the solution that Africa needs. This brings to question the overall direction of research in addressing housing finance needs.

2.1.2 Challenges of Mortgage Financing Systems in Africa

In discussing the challenges to the development of mortgage financing systems in Africa, several factors have been considered over time. Popular among these challenges are weak or lacking secondary markets to ensure liquidity and long-term funding, low-income levels across most developing economies, an unstable macro economy that informs high inflation and interest rates, poor legislation/regulation that enforces foreclosure, weak land titling systems and poor tenures, almost non-existent credit information, and financial illiteracy or cultural issues like an aversion to credit (Donkor-Hyiaman, 2018).

Donkor-Hyiaman (2015) employed a multi-method research and investigates how markets enable mortgage finance and the reasons for wide variations in mortgage finance. The study cuts across 116 developing economies and discovered that mortgage finance markets have a high propensity to deepen in highly urbanised countries. Some common factors across these countries include higher income levels (middle-income threshold and upwards); macroeconomic stability, a large economically active population who has better access to the financial system and long-term lenders. The research also mentions macroeconomic strengthening as a tool for achieving higher affordability and demand for mortgage finance.

This work establishes the strong role that macroeconomic indicators play in strengthening and deepening affordable housing finance through mortgage. Like most of the other studies assessed, however, most rely significantly on the assumption that macroeconomic measures are only relevant in the existence of rising or growing income levels and in relation to formal mortgage finance. This places affordability mostly in the context of an already thriving market and not necessarily in terms of markets that require less formal finance structures as mortgages.

Figure 2.3 summarises some of the major challenges facing mortgage financing in Africa using the case of 4 countries, Kenya, Ghana, Rwanda, and Botswana.

FIGURE 2.3: CHALLENGES OF MORTGAGE FINANCING IN KENYA, GHANA, RWANDA, AND BOTSWANA

	Weak Secondary mortgage market	Low-Income levels	Unstable Macroeconomy	Lack of credit history	Poor regulation and collateral	Financial illiteracy	Lack of tenure security
Teye , Teye , And Asiedu, 2013	√	√	√	√	√	√	√
The World Bank. (2011)	√	√	√	√	√	√	√
Samuel (2019)	√	√	√				
Berge and Jing (2010)	√	√	√		√	√	√

According to the information in Figure 2.3, it is safe to conclude that African mortgage finance markets experience similar challenges and there is sufficient evidence that alternative solutions are needed.

According to The Centre for Affordable Housing Finance in Africa (CAHF) (2012), the failure of housing policy and delivery systems to recognize and support the potential of incremental housing, as well as a narrow focus on the mortgage instrument, pose challenges to the development of appropriate and fully accessible housing finance systems throughout Africa. Furthermore, the popular mortgage finance option is often considered expensive for most households to acquire. For example, Quansah, and Debrah (2015) found that mortgage finance in Ghana is often considered too expensive for most prospective homeowners. Furthermore, a lot of economic policies, and housing finance investment seem to reflect the belief that simply adjusting mortgage finance does not offer a definite solution to this problem of unaffordability. An analysis carried out by Nkechi, Samuel and Meshack (2019) reports that commercial bank mortgages had no significant contribution to housing finance in Nigeria with a proportion of less than 1% on a yearly average.

Similarly, Hawtrey (2009) also argues that mortgage finance for developer-built units served only a small upper-middle class. The remaining population appeared marginalized from economic growth and unable to afford commercially produced housing. This is further corroborated by the World Bank (2011) report on Kenya's Mortgage Market. The report stated that an ideal mortgage financing system should have a sufficient absolute level of income, verifiable and regular income but most of Kenya does not have this. Furthermore, for a lot of the cases where mortgage finance has recorded some success, it is with the understanding that this cannot be replicated in developing economies with poverty rates and lower income levels (See Nyasulu and Cloete, 2007; Nyanyuki

and Omar, 2016; Iyandemye and Barayandema, 2018; Anacker, 2019). What this means is that households must rely on savings, family support, and contributions to build homes incrementally (Groves, 2004). It becomes imperative to understand how incremental housing finance has evolved in the past and the possible future directions.

2.2. The Incremental Housing Finance Option

For a lot of households, buying a home requires huge capital and mortgage lending is one of the options for financing this need. This role played by mortgage finance translates as an opportunity for prospective homeowners who cannot access a lump sum today. However, in several developed and developing economies, inadequate access to mortgage finance and issues of affordability continue to motivate a need to research other instruments for financing housing (Melzer, and Hayworth, 2018). With the predicted growth in urban population across developed and developing economies, housing needs are bound to become more urgent and sophisticated. According to the report of the World Bank Group (2015), Africa is urbanizing faster than income is growing and consequently effective demand for housing is low. Therefore, financial institutions providing mortgage financing apply strict loan criteria, offer high and variable interest rates and require short repayment periods. This approach makes mortgage housing finance unattainable for a lot of Africans (Nyasulu, and Cloete 2007). Furthermore, it creates a situation where most prospective homeowners rely on grants, government subsidies and other informal modes of finance.

From this, it can be deduced that investment in formal housing finance for low-income groups has increasingly become unattractive to investors. The studies of Wallace (1995); Gurrán and Whitehead (2011); Poon and Garratt (2012); Bright and Demarco (2016) and Ryan-Collins (2019) observed that mortgage finance plays a major role as a contributor to housing affordability in most developed economies. However, this is different in developing nations,

especially, those across Africa. The challenge of mortgage loan accessibility for the low-income class utilising the same for homeownership has been largely difficult.

In Rwanda, major commercial banks in the mortgage market provide costly middle and short-term home loans, conditioned loan to value (LTV) ratio and conditioned payment-to-income ratio which creates limited housing affordability (Iyandemye and Barayandema, 2018; Fuchs, 2018). What this implies is that only high-income households with collateral assets, and who are capable of shorter repayment periods often qualify for mortgage finance. This is similarly the case as reported in studies undertaken in Ghana, Zimbabwe, Namibia, Nigeria, Uganda, and Tanzania (see The World Bank 2011; Quansah and Debrah, 2015). This is because most low-income earners struggle to repay mortgage loans, especially the amount needed for housing. Consequently, the objective of affordable housing provision for low-income earners is inhibited in most developing countries.

Therefore, Africa's housing demand will largely need to consider unconventional/informal financing options for their housing needs. To stem the expansion of informal settlement and slums, governments must explore a variety of financing solutions for housing modification, development, and incremental housing across Africa. Despite the obvious needs, the study of new and innovative finance options have been polarized, sparse and seemingly disconnected. Thus, concerns about whether informal housing finance can be considered as an alternative, a substitute, or complement to mortgage finance in Africa exists. Many studies on the subject matter have attempted re-inventing or modifying mortgage finance and adapting it for the African market (see Nyasulu and Cloete, 2007; Melzer, 2015; Akenga, Olang and Galo, 2015; Nyanyuki and Omar, 2016). A collective assessment of these studies provides a wider scope of information about the mortgage market across Sub-Saharan Africa. Furthermore, this thesis explores the role of finance

innovations like microfinance for achieving affordable self-help/incremental housing across Africa.

2.2.1 Contextual Underpinnings of Informal/Incremental Housing Finance

Several studies on informal housing allude to the significant advocacy and contribution of John F.C. Turner's theories of incremental housing to this research focus (Akinwunmi, 2009; Donkor-Hyiaman, 2018; Ryan-Collins, 2019; Van Noorloos, et al., 2020). Notable among the studies that explored Turner's self-help theories is Van Noorloos, et al. (2020). The study shares an extensive examination of the informal incremental housing system in the context of present-day Africa. The authors also confirm that the relationship between housing consolidation and the management of different types of finance, the role of savings, and the costs of self-help housing has been hardly addressed in research. This study's position is that informal housing finance seems less stringent when compared to mortgage finance. This is because this source of funding from friends and family, savings, and community contributions sometimes seem to be the more accessible option. However, these forms of financing are inconsistent, piecemeal, and not always available.

Furthermore, Van Noorloos, et al. (2020), discuss housing finance and the need to distinguish between supply-side and demand-side financing when it comes to incremental housing. Based on this, it is important to note that housing finance in the African context needs to be considered from the end-user's perspective. If incremental housing finance must be designed to reach the neediest, it should give cognizance to how Africans incrementally build homes and as such rely on informal and incremental finance. This perspective draws from John F.C. Turner's theories advocate assisted self-help housing as the most affordable housing option in developing economies as against the formal options like mortgage finance.

While referencing JFC Turner's self-help theories, Ntema (2011) notes that Mortgage finance adopted from developed economies forces the purchase of ready-developed housing. This contributes significantly to the problem of affordability. Therefore, this study proposes an affordable housing finance framework that is more suitable to the economic realities of Africans and the need to build incrementally. The framework is expected to closely align financing of a home purchase or ownership with the socioeconomic status of African households. In most African settings, households develop or own houses in bits or increments in that at year 0, the land is acquired, and development might take several years. The time taken to gather the required equity or debt finance for acquisition may have taken several months or years by household. There is a gap in understanding how incremental housing finance attempts to address the challenges plaguing the formal mortgage finance.

2.2.2 Performance Risks Impacting Incremental Housing Finance

Among various studies that have considered the subject of affordable housing in Africa, Groves (2004) makes one of the earliest cross-continental contributions. His study investigated the challenges facing the provision of affordable housing in African cities. The author pointed out that privatised African housing markets are often small-scale and largely financed by building societies – a reminder of colonial pasts. Financing in these times struggled because of poor macroeconomic conditions and Structural Adjustment Programs that withdrew government funding, tax, and regulatory privileges. It can be inferred that finance failure is partly influenced by the apathy or lack of government role in developing scalable markets.

Similarly, several studies have blamed the failure of formal housing finance in Africa on neoliberal market systems (United Nations Human Settlements Programme, 2005; Goebel, 2007; Ferguson and Smets, 2010). These studies believe that liberalizing the market would only seem to absolve the government of its responsibility towards housing the poor. However,

in the journey towards innovative finance for incremental housing, enabling markets can be seen from a different and more positive perspective. Groves (2004) recommends government subsidies and aid that augment savings, credit co-operatives, employee savings schemes and other traditional forms of rotatory credit associations. Meanwhile, the study notes that any innovation in finance would not be sustainable without tenure security. This suggests that the author believes that lack of government involvement and insecure land tenure are the biggest bottlenecks to financing affordable housing for low-income groups. The study suggests that an appropriate way forward would include liberalising land supply through market forces and development and financing for the middle-income groups. The study assumes that a liberal market would be accommodating to the needs of many Africans and contradicts its position that government involvement is required to strengthen the market.

Furthermore, the question of risk and how it is shared among the stakeholders to housing development is critical to financing. In addressing risk and transaction cost, Ferguson and Smets (2010) believe that every finance framework must include a legal aspect; user credit information, trust, or collateral; and it must redefine the role of government. In a study of Botswana's housing finance system, Berge, and Jing (2010) discovered a small housing finance market dominated by commercial banks. Despite the gains of a stable macroeconomy, the authors noted a lack of competition, focus on high-income groups, inexistent secondary market, and hesitation to lend to other low-income groups. Berge, and Jing (2010) believe that unlike many other developing countries in Africa, Botswana's stable macroeconomic development since the 1980s and 1990s has ensured that housing finance is unhindered. Though the structure of bank lending to families has changed with a sharp increase in property loans between 2002 and 2006, progress is still sluggish. The study explained Botswana's lack of scale in the development of housing finance by pointing to the country's sizable population of people who are deemed hazardous and low-income, which excludes the majority of low-income households.

In discussing housing finance, Tomlinson (2007) and Berge, and Jing (2010) refer to the framework developed by Hassler (2005). In this framework, 5 preconditions for a workable housing finance market are identified. The framework used frequently relies on financial channels, a functional housing market, a legal framework for property rights, and macroeconomic conditions that are generally stable. However, numerous research studies failed to take into account the macroeconomic distinctions between developed and developing nations while using this methodology. As a result, it is essential to adapt the framework to the African market and incorporate additional methods that Africans have employed to earn money for various requirements. What this creates is a bleak legal macroeconomic and higher risk perception by lenders operating in emerging African economies (Datta, and Jones, 2001; Cacadac, and Warnock, 2008; Hawtrey 2009).

According to Berge, and Jing (2010), besides locational, urbanization, and legal framework challenges to financing housing, a lot of low-income applicants for financing are challenged with exclusionary selection criteria. This belief or lack of faith in the profitability of lending to low-income homeowners can be attributed to several indicators including macroeconomic perception. The formal finance selection criteria are often designed to protect lenders and investors from the risk and volatility inherent in developing markets. This is not unreasonable as the purpose of investment is largely profitability. However, it becomes imperative to consider hybrid frameworks that improve risk management practices while giving investors more confidence to diversify financing products that extend to the low- and middle-income groups.

Assisting people who are already used to building incrementally in terms of finance could mean a lot of things to financiers, the government, and even the homeowners. Habitat For

Humanity (2014) advocates the provision of Housing Microfinance to assist this incremental or progressive mode of housing development that accounts for up to 90 per cent of residential construction in the developing world. Developing a framework for assisted incremental or self-help housing as a paradigm could be a way forward for creating enabling markets for innovative financing options for low- and middle-income groups across Africa. While some studies see enabling housing markets and self-help as an ideal pathway for achieving housing finance affordability others see this as a mere abandonment of government duties and a detrimental result of neoliberal economic policies. For example, Hawtrey (2009) reports that for the World Bank, enabling housing markets mainly meant virtually abandoning sites-and-services and slum-upgrading projects for two decades in favour of funding national mortgage systems with loan terms of typically 20 to 30 years for the middle and upper-middle classes. Similarly, Kongoro, and Owino (2016) claim that incremental housing, despite its popularity, is not the solution to the low access to housing finance in Kenya. In the face of a staggering failure of formal/mortgage finance across African economies, and unique macroeconomic realities, housing finance frameworks must be duly situated in the African context.

This study hopes to consolidate knowledge on innovative and inclusive approaches to financing and enabling affordable housing for low-income groups in Africa. It proposes a new financial framework that reimagines the role of government as a market enabler and risk buffer that would improve private investor confidence.

2.3. Incremental Housing Finance Frameworks and Macroeconomic Drivers

The challenges of mortgage financing do not completely rule out the existence of housing markets and financing in Africa. Across the continent, homeowners have continued to build incrementally. This necessitates the development of a framework that is suited to the financing needs of these incremental housing processes. Informal markets do not have to lack structure.

Hence this study inspects the nature and operation of incremental or informal housing systems across Africa to develop a housing finance framework. Table 2.3 illustrates the attempts for innovative housing financing across 7 major African countries. Summarizing the common themes and solutions attempted, the table provides a basis for designing a comprehensive financing framework.

FIGURE 2.4: AFRICAN HOUSING FINANCE FRAMEWORKS (SOURCES: GROVES, 2004; HASSLER, 2005, GARDNER, 2008; INTERNATIONAL FINANCE CORPORATION, 2019; CENTRE FOR AFFORDABLE HOUSING FINANCE IN AFRICA, 2020)

Incremental Housing Finance in Africa							
	Kenya	Nigeria	South Africa	Botswana	Namibia	Egypt	Morocco
Land Tenure							
Opportunity to Regularize Tenure	√	√	In progress	-	√	X	√
Funding Sources							
Housing Microfinance (HMF) Providers	13	1 013	4 500	12	423	969	12
Govt. & DFI Subsidies	√	√	√	√	-	√	√
Savings/Deposits Coops	√	-	-	315	√	-	-
Repayment guarantee?							
Pension fund Guarantee	√	-	-	X	√	-	-
Community Guarantee							
Government Guaranteed loan	√	√	-	√	-	√	√
Savings history	√	√	-	-	-	-	-
Employment history		√	-	-	-	-	-
Government Role							

Interest rate subsidy	√	√	-	X	√	√	√
Cash Grants	√	-	√	√	√	√	√
Tax Incentives	√	-	-	-	-	-	√
Loan Terms							
LTV %	-	90-100		100	100+	-	-
Repayment Period (yrs.)	Variable	30	20	20	25	20	25
Repayment Schedule	-	Monthly	Monthly	-	-	-	-
Interest	18	6	25	17-24	8.75	10	4.45

Building on existing frameworks like the Hassler (2005) housing finance framework and the International Finance Corporation (2019) framework, the study examined 7 African housing markets. The indicators inspected in Table 2 depicts the housing finance strategies adapted in housing markets that seek to address the need for incremental/informal housing finance options. The study captures differing but similar strategies for improving access to housing finance in Kenya, Nigeria, South Africa, Botswana, Namibia, Egypt, and Morocco. The frameworks address tenure security, diversity of funding sources, collateral or loan security, government's role, and loan terms, differently. However, some common themes can be established and applied for developing an African housing finance framework that accommodates informal and incremental housing needs.

2.3.1 Tenure Security

Kenya, Nigeria, Namibia, and Morocco demonstrate the strong pursuit of integrating informal settlements through tenure regularization. While South Africa pursued legislative reforms for the Upgrading of Land Tenure Rights targeted at excluded or discriminated groups (Centre for

Affordable Housing Finance in Africa, 2020). Despite Egypt's strong housing finance efforts, the demolition of informal settlements is bound to discourage support for incremental or informal housing efforts. This consequently increases the issues of unaffordable housing for informal housing. Tenure security is a major determinant for building investors' confidence and creating avenues to regularize informal settlements is bound to increase housing finance supply. The United Nations Human Settlements Programme has committed to improving the lives of 100 million slum dwellers by 2020 through tenure security action plans (Groves, 2004). African housing markets would benefit immensely from frameworks designed to extend tenure security to informal settlement dwellers.

2.3.2 Diversity in Financing

The need to combine various financing sources for incremental housing is an African reality. In Table 2.3., the responses of various African countries to this need provides interesting insights. Nigeria and South Africa have the largest pool of Microfinance providers with 1 013, and 4 500 respectively. Gardner (2008) reports that between 10% and 33% of all microfinances in South Africa is applied to housing in some way, which implies a housing-related microfinance portfolio of up to R10.7-billion (about US\$1.1 billion). Habitat for Humanity (2014) which states that 20% of microenterprise lending is used for housing in developing economies. There is also a huge reliance on government and DFI subsidized loans which is indicative of the slow adoption of the government's role as an enabler instead of the provider. However, in Botswana, Kenya, and Namibia, the growth of Savings cooperatives is a great financing initiative that should be given more attention as a source of financing. Encouraging deposits and savings to pool funding is bound to create a sustainable way to promote a savings culture while offering a chance for longer term and large scale finance for incremental housing.

2.3.3 Loan Repayment Guarantee

Understanding the challenges with tenure security and lack of collateral in a lot of incremental housing systems, lenders' and investors' confidence would rely on other forms of guarantees. Government guaranteed loans are popular across 5 countries of the 7 in Table 2. A few other approaches for securing loans that have been recorded include pension-fund guaranteed loans and the use of savings history as a basis for extending housing finance. In Nigeria, the Federal Mortgage Bank uses worker's contributions to the National Housing Fund as eligibility criteria for subsidized housing loans. Furthermore, the employment of the Bank Verification Number (BVN) technology in Nigeria to guarantee repayments stands out as an innovative tool (Centre for Affordable Housing Finance in Africa, 2020).

2.3.4 Government Role

Shifting from an affordable housing provider to an enabler means a lot of things for various markets. In Africa, cash grants to the affordable housing market are still popular instruments employed. Only Nigeria does not have any direct cash transfer model for supporting the purchase or ownership of affordable housing. Interest rate subsidies are also relatively popular in Kenya, Nigeria, Namibia, Egypt, and Morocco. Meanwhile, tax relief and concessions to developers are also seen in Kenya and Morocco. It is still a popular experience to have the government acting as providers of housing finance instead of acting solely as market enablers.

2.3.5 Loan Terms and Affordability

Information on loan terms for the informal sector is not constant or readily available. However, it is common to find 100% LTV instruments that seek to reduce the risk of loans for the recipients. However, this means that credit risk is often a burden that lenders must bear. Sharing credit risk through equity is not as popular as it should be. Interest rates are not constant, and this is indicative of varying risk perceptions across Africa. Morocco's low interest is attributed to a stable macroeconomy, and a government-guaranteed loan system known as FORGARIM

(Centre for Affordable Housing Finance in Africa, 2012). It can be inferred that housing finance frameworks that share the risk burden among stakeholders have greater chances of improving affordability.

2.4. Macroeconomic Drivers of Housing Finance

Under economic theory, when the GDP is low it means that overall purchasing power dips and so does the demand for housing and consequently financing demand will decrease. Conversely, when the GDP increases, the purchasing power also increases hence increasing the demand for real estate and mortgage uptake. Broadly speaking, when the economy is sluggish, so is mortgage uptake (Berk, Dodd, and Henry, 2006). Ryan-Collins (2019) also discusses the housing finance feedback in the context of mainstream economic theory. The study suggests that deregulating housing finance and private ownership are not beneficial for economic growth. This study's position is that the increasing demand for mortgage and homeownership, and its supply do not reduce housing prices but rather increase the problem of affordability.

Considering these general assumptions and limited research into the interactions between the macroeconomy and formal housing finance, it is reasonable to expect that emerging economies do not perform well in terms of mortgage uptake. However, the relationship between the macroeconomy and affordable housing finance is one that is not yet fully explored in terms of observable indicators as suggested in Sobukwe-Whyte (2016). This might therefore pose a challenge in that housing finance players may not consider other approaches to finance affordable housing outside the popular mortgage options. However, observable indicators of the macroeconomy's performance and the relationship with household expenditure on housing could provide insight on the performance of affordable housing finance products. These insights would be useful for policy and strategies for innovative finance options which provide optimal utility and value to low-income earners in emerging African economies.

Quansah, and Debrah (2010) report that housing finance through a formal mortgage, although very common in developed countries, is not as successful in many developing countries. The authors explain further that this is caused by the rapid inflation and slow economic growth among other negative economic indicators persisting in developing countries. The authors also point out other explainer indicators of the unaffordability of housing finance to include high levels of inflation, an overvalued currency, low levels of savings, and difficulty in mobilizing long-term funds. All these culminate in the unstable macroeconomic environment that further increases lending risk and interest rates compared to more developed economies. The study by Quansah, and Debrah (2010), however, viewed housing microfinance as a plausible option for financing house purchases in Ghana. The research describes microfinance as the provision of financial services to low-income individuals or groups who traditionally lack access to banking and its related services. It has for some time been an alternative for low-income households to access finance for other purposes than housing. Generally, it is noted that between 15 to 40 percent of microfinance loans are used for housing development. However, for such innovative approaches to be adopted, it is important for stakeholders to justify the policy changes and product strategies that would offer appropriate incentives to invest in affordable housing markets while seeking to maximise profit.

Adopting a similar framework as Gasparèniènè, Remeikienè, and Skuka (2016), Table 2.4 summarizes 25 studies that refer to the role played by macroeconomic factors in affordable housing finance. This descriptive content analysis covers literature between 23 years selected through web search for affordable incremental housing finance in Africa.

FIGURE 2.5: MACROECONOMIC INDICATORS INFLUENCING AFFORDABLE HOUSING FINANCE IN AFRICA

Macroeconomic Indicator	The Authors	Impact on Incremental Housing Finance Affordability
GNI per capita (income)	World Bank Group. (2015), Centre for Affordable Housing Finance in Africa (CAHF). (2012), Quansah, B. and Debrah (2010), United Nations Human Settlements Programme. (2005), Gasparėnienė, Remeikienė, and Skuka (2016)	Positive
Population (Total)	Prime-Stat PVC Ltd. (2018), Lee (1995), Hawtrey (2009), Cacadac, and Warnock (2008), Chaplin, and Freeman (1999), Sobukwe-Whyte (2016), World Bank Group. (2015), Chen, Hao, and Stephens (2010), Donkor-hyiaman (2018), Berk, Dodd, and Henry (2006).	Negative but inconclusive
GDP	Prime-Stat PVC Ltd. (2018), Lee (1995), Gasparėnienė, Remeikienė, and Skuka (2016), United Nations Human Settlements Programme. (2005), Donkor-hyiaman (2018), Ryan-Collins (2019), Struyk, Boamah, Rizvi, Múčková, Hrnčiarová, MacDonald, and Horn (2010), Li (2015), Berk, Dodd, and Henry (2006).	Not significant Positive
Life expectancy at birth	Kongoro, and Owino (2016), United Nations Human Settlements Programme (2005), Donkor-hyiaman (2018)	Inconclusive
Interest rate	Berk, Dodd, and Henry (2006); Teye, Teye, and Asiedu (2013); Akenga, Olang, and Galo (2015); Quansah, and Debrah (2010); Poon, and Garratt (2012); Iyandemye, and Barayandema (2018); Prime-Stat PVC Ltd. (2018); Donkor-hyiaman (2018)	Negative
Inflation	Teye, Teye, and Asiedu (2013); Gasparėnienė, Remeikienė, and Skuka	Negative

	(2016); Quansah, and Debrah (2010); Prime-Stat PVC Ltd. (2018)	
Macroeconomic Indicator	The Authors	Impact on Incremental Housing Finance Affordability
GNI per capita (income)	United Nations Human Settlements Programme. (2005); Quansah and Debrah (2010); Centre for Affordable Housing Finance in Africa (CAHF). (2012); World Bank Group. (2015); Gasparėnienė, Remeikienė, and Skuka (2016)	Positive
Population (Total)	Lee (1995); Chaplin, and Freeman (1999); Berk, Dodd, and Henry (2006); Cacdac, and Warnock (2008); Hawtrey (2009); Chen, Hao, and Stephens (2010); World Bank Group. (2015); Sobukwe-Whyte (2016); Prime-Stat PVC Ltd. (2018); Donkor-hyiaman (2018);	Negative but inconclusive
GDP	Lee (1995); United Nations Human Settlements Programme. (2005); Berk, Dodd, and Henry (2006); Struyk, Boamah, Rizvi, Múčková, Hrnčiarová, MacDonald, and Horn (2010); Li (2015); Gasparėnienė, Remeikienė, and Skuka (2016), Donkor-hyiaman (2018), Prime-Stat PVC Ltd. (2018); Ryan-Collins (2019),	Not significant Positive
Life expectancy at birth	United Nations Human Settlements Programme (2005); Kongoro, and Owino (2016); Donkor-hyiaman (2018)	Inconclusive
Interest rate	Berk, Dodd, and Henry (2006); Quansah and Debrah (2010); Poon, and Garratt (2012); Teye, Teye, and Asiedu (2013); Akenga, Olang, and Galo (2015); Iyandemye, and Barayandema (2018); Prime-Stat PVC Ltd. (2018); Donkor-hyiaman (2018)	Negative
Inflation	Quansah and Debrah (2010); Teye, Teye, and Asiedu (2013); Gasparėnienė,	Negative

	Remeikienė, and Skuka (2016); Prime-Stat PVC Ltd. (2018)	
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It becomes further important to understand the challenges to deepening housing finance in developing economies. Teye, Teye, and Asiedu, (2013), believe that favourable macroeconomic indicators, such as low inflation and stable interest rates, can positively influence the development of the mortgage market. The authors state, further, that some other indicators that expose banks to interest rate risk and credit risk, would undermine financing by banks. The study suggests that research can rely on data and insights derived from the macroeconomy to determine the direction of housing and finance affordability and innovation. Furthermore, in a survey carried out by Central Bank of Kenya (2012), lenders pointed out several macroeconomic constraints to the further growth of the mortgage market which suggest a greater demand for less formal finance methods. Most notably is long term access to funds, deficiencies in property valuation, credit risk and high interest rates. It is not surprising that microfinance for self-help housing becomes an important framework to consider for addressing housing finance affordability for developing countries in Africa.

2.4.1 Influence of the Macroeconomic drivers on Incremental Housing Finance and Investment

Berge, and Jing (2010) posit that the linkages between macroeconomic growth and the housing market is not one-sided, and that housing market developments affect the macro economy as well. It is possible to assume that when the macroeconomic environment drives economic growth, it will encourage financial sector and housing finance development, which also goes on to drive further growth. The authors identify macroeconomic drivers, including interest rates, that influence the efficiency and performance of the housing finance sector in Botswana.

In the consideration of the development of housing finance in Botswana, the study believes that unlike many other developing countries in Africa, Botswana's stable macroeconomic development since the 1980s and 1990s has ensured that housing finance is unhindered. However, despite the shift in the structure of bank lending to households, with property loans increasing rapidly between 2002-2006, development still remains slow. The report attributes this to a large population that are considered low-income and risky, subsequently excluding most of the income poor households from mortgage finance.

Muellbauer, and Murphy (2008), in a UK study, assert that housing markets interact with the rest of the economy in several ways. The authors identify some of the drivers of house prices as income, the housing stock, demography, credit availability, interest rates, and lagged appreciation. These researchers also state that the interaction of housing, housing finance, and economic activity has for years been of central importance for understanding the behaviour of the economy. As research grows to understand the relationships between the economy and housing, it is important to look at the literature on the drivers of this relationship. Muellbauer, and Murphy (2008) provide a list of demand side drivers of housing affordability including:

1. Income
2. Interest rates
3. Credit availability
3. Demography
4. Expected appreciation.

According to Cacadac, and Warnock (2008), countries that provide robust legal rights for borrowers and lenders, elaborate credit information systems, and a more stable macroeconomic environment also tend to have more extensive housing finance systems. The research concludes

that these same factors explain changes in housing finance across emerging market economies. In other words, access to macroeconomic data can explain the affordability of housing finance across emerging markets. This study aligns with the theories that suggest that housing finance affordability is a problem that should be addressed through market tools and redesigning the role of government.

2.5. Incremental Housing Financing Frameworks

Seeing the unique challenges of operating formal mortgage finance in most African countries, this review finds that a diverse framework like **Figure 2.2** is required to create a pool of informal financing solutions that achieve inclusive financing for low- and middle-income earners. The framework proposed reflects some of the strategies employed in African markets that have achieved limited success in addressing incremental housing needs. The study recommends a hybrid framework that relies and builds on the 5 preconditions for housing finance frameworks by Hassler (2005). The Assisted/Government Guaranteed Incremental Housing Finance Loan framework is illustrated as follows:

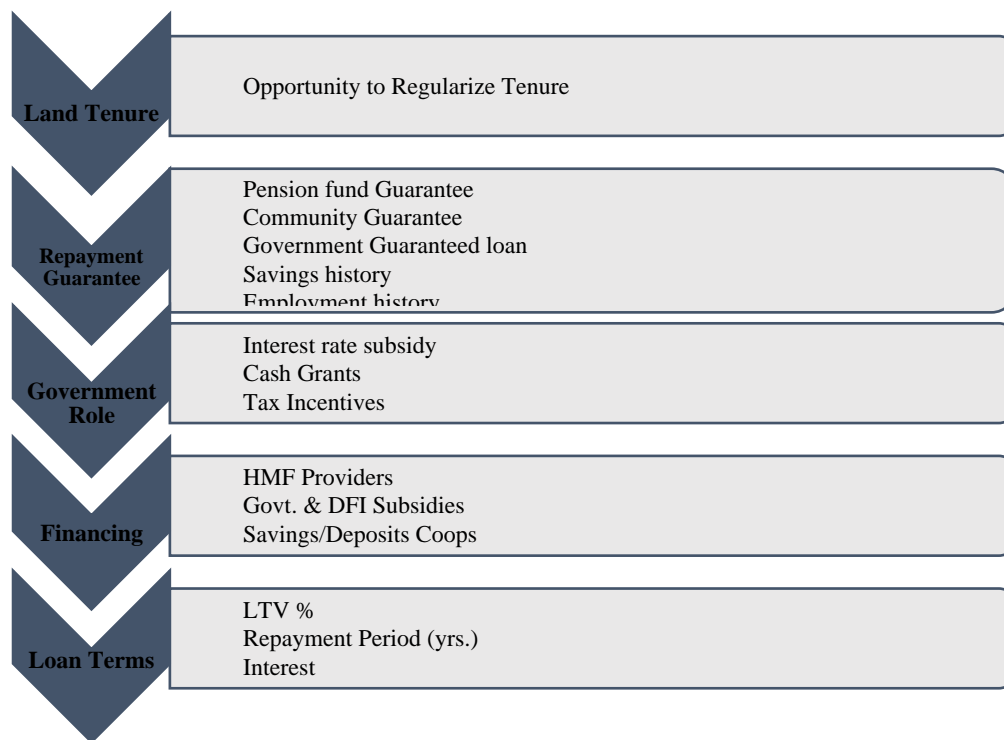


Figure 2.2: **Proposed Assisted/Government Guaranteed Incremental Housing Finance Loan Framework**

2.5.1 Optimizing Incremental Housing Finance Models Using Macroeconomic Data

It is important to address housing finance affordability in terms of relationships with the macroeconomy and development of new innovative housing finance approaches. Gardner, Lockwood, and Pienaar (2019), set the conversation around affordability as it relates to access to formal finance for incremental housing. This study found that most efforts to enable housing markets only succeeded in spreading mortgage finance for the top 20–30 per cent of the income distribution globally. The formal system offers only a small amount of financing necessary for the bottom 80 per cent. It also does not say much about the role that macroeconomic indicators have played or the impact on affordability for low-tier income groups. Formal housing finance companies have also shown resistance to lending to incremental or self-help housing due to the risks associated with the building processes and the uncertainty of the house value and

difficulties with mortgage valuation. This has resulted in development of micro finance institutions lending to low-income shelter development projects (UN-Habitat, 2005).

Merrett, and Russell (1994) set out a clear, comprehensive, and robust framework for understanding the finance needs of self-help housing, both in respect of access and improvement. The strengths of non-conventional finance in meeting these needs are described, in respect of the achievements and potential of rotating savings and credit associations, and of financial cooperatives. The cooperative acts as a channel or intermediary for money saved by one set of individuals to be lent to a second set. The cooperative is therefore, a financial intermediary and its activities are one of the simplest (and oldest) forms of financial intermediation.

Within non-conventional frameworks, the security of the loan is handled in a different way. The lender's risk is reduced by combining small advances with short repayment periods. How much people can pay for home ownership is subject to several factors and agents. Even more so when considering a global perspective. The capacity to pay might differ based on regions within a country and even from country to country. Therefore, the relationship between various economies and the housing finance market is expected to be unique. It is important at this point to investigate these relationships further or the role that specific macroeconomic indicators play in achieving housing finance affordability globally. The need to measure and improve affordability of housing finance presents a problem especially in developing economies where data and consumer behaviour are often hard to track. Therefore, housing finance innovation would significantly benefit policy designs that accommodate the unique macroeconomic context of developing markets and affordable housing needs.

2.5.2 Theoretical Frameworks for Affordable Housing and the Implications on Housing Affordability

Governments across developing countries attempt to address the housing problems which resulted from rapid urbanization, growing urban poverty and dilapidated housing stock. Several of these attempts have included governments' construction and management of public housing. Extensive programmes also took a political turn across the Southern African countries where housing provision was tied to objectives of political and economic control of the African labour force (Watson, and McCarthy, 1998). Top among approaches considered in literature thus included public housing or state-controlled solutions and the assisted self-help theories. This study contributes a fresh perspective by looking at the alternative approach of self-help and how it can serve the low-income population in South Africa and by extension the rest of Sub-Saharan Africa.

Like Burgess (1978); Watson, and McCarthy (1998); Muller, and Mitlin (2007), several public housing advocates believe that housing for low-income groups should be a government function. The major argument against assisted self-help is that these solutions tend to end up as capitalist ventures that maintain the status quo of excluding the poor which is the original problem. The study argues for inclusion especially considering the apartheid past in countries like Namibia, South Africa, and a number of other Southern African countries.

In South Africa, the housing objective took on a form and concentration connected to the post-apartheid project. This creates a unique context for the need to address the lack of housing among the majority of black low-income groups. These political theorists believe that the solution to housing affordability is a political one, that the government needs to play a critical role in asset redistribution.

Table 2.5: Critical Literature and Content Analysis for Affordable Housing Finance Theoretical Framework

Author(s)	Year	Theories & framework	Methodology	Study Area	Sample Size	Finance Method
Berge, and Jing.	2010	Housing finance sector preconditions	Qualitative Analysis of Semi-Structured interviews	Botswana	27 interviewees	Mortgage
Stone	2006	Residual income approach	Quantitative analysis	United States	2 Households	Mortgage
Merrett, and Russell.	1994	Non-conventional Finance	Qualitative Critical Case Study	Venezuela	-	Financial Cooperative
Wallace	1995	NA		United States	NA	Subsidized Housing Mortgage
Datta, and Jones.	2001	Assets framework	Quantitative use of questionnaires, longitudinal research.	Botswana and Mexico	446 households in Mexico 409 Households in Botswana	Diversified
Pugh	2001	Whole Housing Sector Development	Historical explanation and critical commentary	Developing countries – Chile, Latin America, Sub-Saharan Africa	-	World bank loans.
					-	
UN-Habitat.	2005		Contextual report	Developing countries, Kenya, Namibia, Philippines	-	Shelter microfinance/NGOs

Nyasulu, and Cloete	2007	-	Questionnaires and semi-structured personal interviews	Malawi	Local authorities of Blantyre, Zomba, Lilongwe and Mzuzu	Mortgage & Building Society Loans
Cacdac, and Warnock.	2008	-	Cross-country data analysis.	Global	62 countries	Mortgage
Hawtrey	2009	Enabling housing theory	Critical Literature Review	Global	17 countries and the European Union	Micro-mortgage for incremental housing
Struyk, et al.	2010	-	Detailed interviews, guided by well-crafted questionnaires		7 Rwandan commercial banks	Mortgage
Ntema	2011	Self-help theory	Literature review, quantitative and qualitative surveys.	South Africa	5 self-help case studies including 275 interviews	State funding
Agao	2014	Title Theory and Lien Theory of Mortgages	Descriptive research design using quantitative and qualitative data.	Kenya	44 mortgage firms that offer mortgage financing in Kenya	Mortgage finance
Akenga, Olang, and Galo.	2015	loanable funds theory	Quantitative secondary data analysis.	Kenya	27 mortgages lenders during	Mortgage finance
Melzer	2015	Mortgage profitability model	Quantitative Data Analysis	South Africa	-	Mortgage finance
Donkor-Hyiaman, and Kenneth Appiah.	2015	Preferred habitat theory	Quantitative analysis of primary and secondary data	Ghana	100 closed-ended questionnaires.	Pension-Backed Housing Finance
Nyanyuki, and Omar.	2016	Title Theory and Lien Theory	Descriptive research design.	Kenya	43 licensed commercial banks in Kenya	Mortgage
Iyandemye, and Barayandema.	2018	-	Quantitative Data Analysis of Primary and Secondary Data	Rwanda	12 commercial banks and 96 households	Mortgage
Melzer	2015	Mortgage profitability	Quantitative Data Analysis	South Africa	-	Mortgage finance

		model				
Donkor-Hyiaman, and Kenneth Appiah.	2015	Preferred habitat theory	Quantitative analysis of primary and secondary data	Ghana	100 closed-ended questionnaires.	Pension-Backed Housing Finance
Nyanyuki, and Omar.	2016	Title Theory and Lien Theory	Descriptive research design.	Kenya	43 licensed commercial banks in Kenya	Mortgage
Iyandemye, and Barayandema.	2018	-	Quantitative Data Analysis of Primary and Secondary Data	Rwanda	12 commercial banks and 96 households	Mortgage

Table 2.5 provides an overview of the research approaches that have contributed to knowledge across Sub-Saharan Africa and methods that have been used. From the quantitative methods of Donkor-Hyiaman and Kenneth Appiah (2015), Melzer (2015), Akenga, Olang, and Galo (2015), to the qualitative studies by Merrett and Russell (1994), Berge and Jing (2010), and Ntema (2011). Due to the nature of data scarcity especially in the affordable housing sector, these studies make conclusions that may not give a full picture of the housing finance patterns and trends outside the scope of the formal mortgage market. This study takes a step further by adapting from Rambaree (2013) which explores how computer aided qualitative analysis can be employed in three different approaches. The study compared the inductive, abductive, and deductive approaches which have proven useful for building case studies. The author concluded that ATLAS.ti presents numerous possibilities for researchers to carry out different methods of qualitative data analysis.

In considering the theoretical approaches to housing finance, a major criticism of public housing is that most of the time it doesn't truly satisfy the need of the residents for proximity to work or economic opportunities. As much as the government steps in to provide what the people need, these projects rarely fully satisfy what self-help theorists consider to be the definition of housing. These structures are usually erected at city peripheries far removed from the city and places of work. This reduces the chances of low-income groups to improve housing circumstances. Goebel (2007) reports that people living in improved housing tended to be more satisfied with the homes compared to people living in the new development on the periphery of the city. Housing for these target groups goes beyond the structures to include having a sense of place, belonging and community cohesion and identity.

Mehlomakulu, and Marais (1999); Pugh (2001); and Marais, Ntema, and Venter (2008) in Table 2.5, attribute the current state of self-help or incremental housing to JFC Turner. Turner's

work represents significantly neo-liberal policies adopted by the World Bank. Marais, Ntema, and Venter (2008), however, note that what should be a site-and-service scheme, in a lot of cases, becomes more of state-controlled provision. These researchers discover that self-help was implemented institutionally (housing cooperatives; self-help organizations) rather than through site-and-service systems in numerous nations, including socialist nations like India and Cuba. This is similarly the case in South Africa. The self-help housing program is implemented through an institutionalised process that involves groups and relies on once-off subsidies that can be extended. This is more reflective of a public housing or state-controlled housing scheme. This phenomenon makes it critical to understand the nexus between government assistance and self-help. If these approaches tend to converge and work side by side, then it becomes important to, instead of totally divorcing the role of the individual and the state, rather uncover what new theories capture this interwoven relationship.

Wilkinson (1998) proposes that the housing effort transforms significantly to providing adequately enabling living situations, rather than just housing provision. This also relies on government's taking up new roles in expanding the economy and increasing employment opportunities. This ensures that agencies seeking to address the housing problem facilitate, formulate, and implement programmes that support individual housing choices by low-income groups.

Mehlomakulu, and Marais (1999), compare public perception of self-help housing and public housing in Mangaung, South Africa. The study discovered that there's a more positive perception of houses built by self-help than those that were built by government. The study maintains that both systems of housing possibly contribute to addressing housing problems. However, the authors note that self-help housing occupants were more critical of the housing condition and placed value on the ownership and possibility of a secure tenure. What public

housing offers in quality; self-help compensates in the form of greater control over the development of housing by low-income groups. Seeing that housing plays a critical role in economic and social development of people, it is a wonder why the study hesitates to make clear arguments for or against either of the theories. This study suggests that both approaches to housing have theoretical justifications. However, these do not necessarily indicate an empirical basis for this. It is of interest to consider how government assistance for self-help could extend individual efforts and achieve greater delivery of quality affordable housing.

Pugh's whole sector housing development theories build on Turner's theories to propose that developing countries need to balance new development and the upgrading of squatter settlements. Turner was a great advocate of 'aided self-help' housing, alongside other researchers like Ferguson, Smets, and Mason (2009) as well as UN-Habitat (2005). Groves (2004) proposes a more widespread acceptance of market forces to liberalise land supply, encourage the development of a construction sector oriented towards middle income groups and supported by appropriate sources of private finance. One would hasten to add however, that there are shortcomings in advocating unequivocal market force solutions to the housing problems of lower income groups.

This study highlights the importance of consolidating theories on the perception of housing. Whether it is a private or public good depends on a lot of things. As a factor of production and economic use, housing opens opportunities to mobilize capital for the individual. Furthermore, many homeowners use the homes for other economic activities. A general phenomenon in South Africa is the extension of properties for rental purposes. Considering this dimension of housing, it is easy to conclude that the solution to housing problems in developing economies lies with the stimulating market forces to accommodate the peculiar needs of low-income groups. On the other hand, the problems that arise from inadequate housing are so pervasive

and extensive that it affects whole communities. From forced possession of public and private property, to increased crime, squatter settlement explosions and even break down in law and order when private individuals cannot trust the government to protect property from encroachment.

These possibilities necessitate theories and perception of the housing problem as more than just separate public or private interests. The study of whole sector housing development is more important than paying attention to specific components of a housing system in terms of welfare, development, and overall distributional impact (Pugh, 2001). The interplay of relationships across various sectors including the macroeconomy and the housing system are just two of the complexities that must be accounted for. Pugh argues that the political economy, where government plays an enabling role, is not to be equated with the ‘rolling back of the state’. It is important to note that the true spirit of assisted self-help is not one that absolves the state of its duty but rather a change of roles. This change from provider to enabler, should subsequently free up state resources to develop other sectors that are critical to enabling finance, in-situ sites and service, improvements, and new developments. Pugh ties together theories of welfarism, design and reform of institutions, enablement, and economic efficiency. A holistic look at theories enabling better housing practices offer greater opportunities to affect policy frameworks for decision makers in the affordable housing space. If sustainable affordable housing will be achievable in the African or developing country context, then government roles must marry the private and public sector efficiently to enable the individual to achieve the housing that’s deserved.

2.5.3 The Viability and Scalability of Incremental Housing Finance Frameworks

In the pursuit for inclusive financing for housing the poor, the question of viability and scalability must be answered. Other solutions like housing grants, interest subsidies, and

subsidised loans have either failed to attract enough investment or are just difficult to implement on scale. In order to innovate and design incremental housing finance models suited to the economic reality of African countries, investors need to know the relationship the macroeconomy has with these models.

The Forgarim model, utilized in Morocco, includes a type of housing loan guarantee aimed at the unemployed and low-income population, according to research by Tagma (2016). This incremental home finance strategy is described as a method to solve the difficulties in obtaining formal housing financing in this case study by the Centre for Affordable Housing Finance in Africa. Only 62% of the population has access to banking services, and banks prefer to minimise risk by not lending to the poor, let alone if the households lack consistent income or are unable to provide documentation of a formal income. Caisse Centrale de Garantie (CCG), a Moroccan government organization, was established in 1949 to support this approach. CCG was first created with the intention of assisting private projects by securing loans for small business owners. Beginning in 2003, CCG began securing mortgage loans, and today there are three distinct forms of mortgage loan guarantees (FOGARIM, FOGALEF and FOGALOGÉ). A one-time government-guaranteed loan, the FOGARIM loan is an interest-bearing loan with the exception of loans for land and construction that can be accumulated. Customers with erratic income could apply for FOGARIM loans. Compared to the previous Moroccan home loans, this was a significant advance.

The Value of the FORGARIM approach:

1. Because it was a guarantee rather than a subsidy, fewer funds were needed for each client.
2. This made sure the program could scale to serve more people.

3. By June 2015, 12 years after it began, it had 123 990 clients and a total loan amount of US\$1.916 billion.

4. By 2015, FOGARIM and FOGALOGÉ had given more than 147,000 people home credit, totalling around US\$2.6 billion in loans.

Since the FOGARIM was implemented alongside a lot of other policies, the market changes are difficult to attribute to this approach alone. However, the successes recorded by this approach provides sufficient pointers to policy changes that could stimulate informal housing markets using semi-formal approaches. The financial mechanism required for this marriage between private and public sector affordable housing efforts need to be further investigated. A lot of studies have considered the role that housing microfinance plays in achieving affordable housing finance within the context of self-help or incremental housing. This study goes further to consolidate field data and create a case for government-guaranteed incremental housing finance in South Africa.

Incremental housing finance encompasses individual and group savings, windfalls, fabrication of building materials by households, sweat equity, small loans from neighbours, money lenders or pawnbrokers, barter arrangements and community self- help, and remittances from family living abroad (Ferguson, 1999; Smets, 2004). Due to the challenges of housing finance affordability, which is a global reality and more so, an African one, incremental housing is often the default approach to housing development. It has been established that a formal financing model is not suitable for the economic situation in African economies. This is often because the mortgage financing approach does not recognize nor adapt easily to informal economies. It becomes imperative to consider the highly recommended solutions like the housing microfinance and government housing loan guarantee approach. This serves as significant contribution for investors

and policy stakeholders including public sector players in determining their roles in enabling informal finance frameworks.

2.6. Chapter Summary

In this chapter the literature was examined discussing housing affordability as it relates to the formal housing finance methods like mortgages. The literature establishes that the adoption of formal financing in African economies doesn't effectively solve the issues of housing finance affordability. This review goes on to examine innovation through informal housing finance methods and the impact of the macroeconomy on development. This literature review establishes the theoretical and conceptual framework that guides the research methodology and further investigation that culminate in a hybrid model for innovative housing microfinance in South Africa. The next chapter focuses on describing the research methodology and gives a comprehensive overview of how the data was collected, managed, and analysed.

CHAPTER 3: RESEARCH METHODOLOGY

3.0. Introduction

In this chapter, the research explores the selected mixed methodology and framework used to find, collect, and analyse data for the study. This chapter aims to describe the philosophical assumptions underlying this research, and to introduce the research strategy and empirical methods applied. The chapter consists of four (4) sections including, section 3.1 which dwells on the purpose of the study and research design, section 3.2 is on the study population and sample size. Section 3.3 contains the data collection approaches and finally, section 3.4 describes the statistical data analysis procedure employed in this study.

The appropriateness of grounded theory and a pragmatist approach to achieving the research objectives are discussed extensively in this chapter. The research methodology includes a mixed method paradigm and further describes the quantitative and case study methods used. It examines the rationale, explores the research methods selected, and offers an overview of the research design including processes followed. It also outlines the instruments and techniques used for data collection, classifies the sources and provides a discussion on the data analysis methods.

3.1. Research Purpose and design

Considering how important housing is to individuals and the economic progress of a people, this study is timely for revisiting the knowledge surrounding housing finance for developing economies. The popularity of formal housing finance options like mortgage finance and its insufficiency for a large population, paints a bleak picture. For a lot of private investors, it is almost conclusive that financing for low-income earners is not profitable and is thus unsustainable. Therefore, this research hopes to consolidate local expertise, academic research, and policy

frameworks focused on incremental housing finance. This is integral to unlocking the value of financial innovation for low-income earners while determining if this is a valuable investment. This study therefore considers the performance challenges faced by mortgage finance in Africa. Furthermore, financial innovation in the context of macroeconomic peculiarities for low-income economies are explored. The overall purpose is to design a hybrid financing model that accommodates the incremental housing needs of the poor and the profitability of lenders.

According to Holden, and Lynch (2006) choosing a research methodology goes deeper than simply determining the practical procedures but it helps to answer the question of why research is conducted at all. The study explains the core differences between the subjectivist and objectivist approach to research which does not necessarily make either philosophical perspective the best. However, the subjectivist approaches phenomenon from a detailed view of an individual perspective. This makes the use of mixed methods appropriate to examine reality from the perspective of housing finance in Africa as a different construct from that of other developed nations. Affordable housing finance and incremental housing methods are novel in fields of research. This makes it highly difficult to rely on a positivist research approach that upholds quantitative data above all else. The need to explore multiple sources of information is predicated by the fact that financial innovations are still evolving phenomena in Africa and are not widely adopted yet.

Morgan (2007) supports the use of a “pragmatic approach” to serve as justification and guidance for social science research methods. Pragmatism offers a suitable basis for a mixed method that uses both qualitative and quantitative methods. According to Shaw (2010), critiques of this method are often concerned with lack of rigour in justifying the mixed method, an inability to demonstrate an understanding of the philosophical implications, lack of quality criteria and lacking skills to use both the quantitative and qualitative methods. However, Shaw (2010) goes further to justify the

suitability of this method for social science research as it brings together a realist and constructivist approach for both the physical and social world respectively. The author believes that the pragmatist mixed method approach brings together elements of quantitative and qualitative research under a single approach. Furthermore, pragmatism advocates rigour through a consistent and coherent use of mixed methods based on the researcher's worldview.

In this study, the use of a pragmatist mixed method is justified by the need for extensive exploration of the research question. This is done with the object of achieving a solution using a convergence of quantitative and qualitative data analysis. The use of case study analysis and limited quantitative analysis are notable in previous studies like Wilkinson (1998); Gardner (2008); Ntema (2011); Lochner, John, and Anita (2015). The combination of mixed methods like the literature content analysis, quantitative data, and surveys are built into the case study. The limitations inherent in one method of analysis have been found to be accounted for in the other method. This tends to provide a greater confidence that biases are eliminated. The quantitative approach used in this study allows us to make inferences about the behaviour of an innovative financing lender in relation to macroeconomic indicators. It doesn't prove fully that the lender has considered such indicators in the design of the financing product. The quantitative data collected provides further empirical evidence for the nature of the market to be examined. This provides insights from observed variables which are often considered to be reliable for generalising.

Case studies are a strategy of inquiry by which the researcher explores in depth a program, event, activity, process, or one or more individuals (Wisler, 2009). A case study can further give insight into the decision-making process of the financiers and perspectives on how products fit into specific economies.

3.2. Study Population

This study, in line with similar research works using a case study approach (Akinwunmi, 2009), explores secondary data from the annual reports of the National Housing Finance Corporation (NHFC). This approach is further supported by the belief that archives internal, and policy documents can be great sources of data when properly organized. The annual reports of the NHFC between 2003-2020 were examined and data extracted were analysed for the value attached to macroeconomic data in finance innovation especially in the development of the incremental housing finance product. These reports were only fully available for the selected timeframe possibly also as a result of the COVID-19 remote work or lockdowns. The NHFC is the South African institution enabled by law to develop or be the primary lender for incremental housing finance retail intermediaries serving low-income groups. This peculiarity of creating a state-enabled lending tool specifically addressing incremental housing needs is not popular. This makes the NHFC the primary target population for this study. Regarding the macroeconomy, the Stat SA and World Bank are popular secondary data sources that are easily accessible and as such serve as a secondary population.

The primary data, in a case study, allows for further analysis to be made in understanding a phenomenon within an institution. The NHFC, having integrated with the Rural Home Loan Fund (RHLF), is the national institution responsible for the creation of less formal housing finance products. This makes the NHFC the focus institution and thus the study population for the primary and secondary data collection regarding incremental housing finance. Reports and data collection on the impact or perception of incremental finance from beneficiaries are acquired through NHFC records. The NHFC's end-user is defined as any South-African household with a monthly income of R1,500-R15,000 (low- to middle-income household also

known as the gap market). The unique position of the NHFC as it bridges private and public interests, makes it the ideal case study for this research.

3.3. Sample Frame

The quantitative analysis includes data collected from National Housing Finance Corporation reports from 2003 – 2020. So far, the period under review coincided with the available annual reports. It is also difficult to generalise based on information in more recent years like 2021 and 2022 as the effects of the global pandemic cannot fully be accounted for just yet. The variable considered is the value of incremental housing loans provided in 17 years as against macroeconomic indicators in the same period. The content analysis data also uses reports from the National Housing Finance Corporation (NHFC) 2003-2020.

To further build the case, electronic survey questionnaires were administered to 9 executive management members of NHFC who were identified as core decision-makers on the financing products. These executives are the total number of NHFC staff members directly involved with decision-making about markets and product implementation as listed on their website. The survey is designed using Jot forms which were transmitted via emails to the survey participants as permitted by the NHFC authority. According to, Becker, Dawson, Devine, Hannum, Hill, Leydens, Matuskevich, Traver, & Mike (2023), case studies can use one participant or a small group of participants. Therefore, the total of 9 executives supports the case study approach for understanding the organisational phenomenon in a real-life context. The NHFC interview participants are identified based on decision-making role and expertise on affordable housing/financing in South Africa. The study aims to interview every staff member that can be reached to provide sufficient understanding of how the financing instruments are designed and affordability achieved.

For end-user data, the NHFC internal reports on incremental housing beneficiary performance are extracted from internal documents and survey responses which the executives provide.

3.4. Data Collection

The data collected includes archival documents, surveys, and transcriptions of interviews. Data collection in this study takes three (3) forms, these include (1) The collection of data from secondary sources including the NHFC annual reports between 2003-2020 which are the available reports before the global pandemic which started in 2020. This provides sufficient data on the financing provision for incremental housing which was the independent variable for the quantitative analysis. (2) The secondary macroeconomic data are collected from the World Bank Data Portal and Stat SA. This also provides sufficient data for further qualitative content analysis of the reports on the relationships between the macroeconomy and affordable/incremental housing finance. (3) The primary data collected include an electronic questionnaire survey and oral interviews with the NHFC executives. These data provide insights on how incremental housing decision-making has evolved within the institution.

3.5. Variables

The quantitative analysis collects data for the NHFC value of Annual Incremental Housing Loans (AIHL) as the dependent variable. The macroeconomic variables that are tested against this dependent variable include:

- Interest rate
- Inflation
- Unemployment

These three macroeconomic indicators were identified in the literature review as the most critical in previous literature addressing housing finance decisions like is seen in Berk, Dodd,

and Henry (2006); Quansah, and Debrah (2010); Poon, and Garratt (2012); Teye, Teye, and Asiedu, 2013; Akenga, Olang, and Galo (2015); Prime-Stat PVC Ltd. (2018); Donkor-Hyiaman (2018). These variables also frequently occur in archival reports of the NHFC which confirms their relevance for decision-makers.

FIGURE 3.1: DESCRIPTIVE DATA SUMMARY

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Number of Incremental Loans	16	27745	0	27745	8266.44	8462.31
Value of loans approved R million	16	605.6	241.0	846.6	582.04	196.17
Value of RHLF Loans millions	13	248347	38520	286867	110.77	74842.95
Number of RHLF Loans	15	39037	8006	47043	33769.93	12941.91
Total Incremental Funding Millions KFW Grant KFWDBSA Loan D	16	462414	130359	592773	362644.25	181358.29
Nonperforming Loans R millions	16	75.7	2.2	77.9	30.88	24.398
Total Number of housing opportunities	16	28484	7669	36153	16587.19	8862.66

Inflation	16	10.753	-.69	10.06	5.08	2.35
Unemployment	16	9.90	22.41	32.31	26.30	2.53
Lending Interest Rate	16	6.63	8.50	15.13	10.85	2.03
Valid N (listwise)	13					

This descriptive data in Table 3.1 provides a foundation for modelling the relationship between incremental housing finance and the top macroeconomic indicators identified through qualitative analysis. The data collected includes the Number of Incremental Loans approved annually, Value of all Loans Approved, Value of Rural Housing Loan Fund (RHLF) loans, Number of Rural Housing Loan Fund (RHLF) loans, Total Incremental Housing Finance Funding, Non-performing loans, and Total Number of Housing opportunities. Three (3) macroeconomic indicators selected for the quantitative analysis were inflation, unemployment, and lending rate (interest).

The data on incremental housing and macroeconomic indicators can be deduced from the descriptive data in Table 3.1. Between 2003-2018, there was approximately 8266 incremental loans annually approved by the NHFC while the RHLF approved on average 33,770 loans. This brings the annual total average to approximately 42,036. Another important measure of the value of incremental housing finance in South Africa is the total incremental funding received in form of grants and loans. The annual average funding received is R 362, 644, 000.00 (Approx. three hundred and sixty-two million, six hundred and forty-four thousand rands). Figure 3.1 further illustrates the network of data collection needs that are met by the procedures highlighted above. The data collected satisfies the objectives of measuring the impact of the macroeconomy on incremental/affordable housing finance and designing a hybrid model.

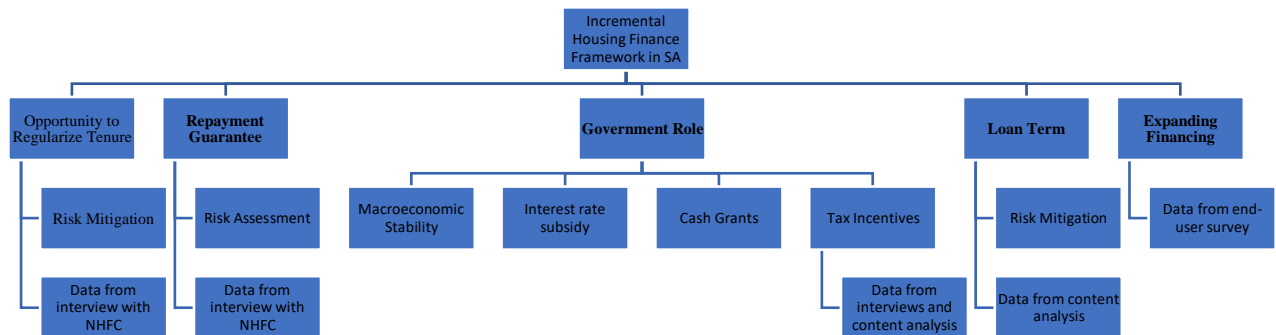


FIGURE 3.2: DATA COLLECTION IN THE HOUSING FINANCE FRAMEWORK.

In this Figure 3.1 is an illustration of the complex data requirements for the case study research and the links to the study’s overall objective of building a case for incremental housing finance.

3.6. The Questionnaire Design

There are various ways in which data can be collected and one of these is the use of survey questionnaires and these could use either open- or closed-ended questions. In mixed method design, it is important to collect data that are appropriate and sufficient to answer the research questions. As Akinwunmi (2009) asserts, mixed method research requires the use of varying data collection instruments. Furthermore, to avoid the problems of ambiguity in the use of qualitative research, it would seem appropriate that quantitative approaches that allow structured collection are considered ideal. Therefore, this study prioritizes measurability in the questionnaire design. The use of structured questions allows for respondents to give responses

that are measured by selecting pre-existing answers and this includes the use of scales including the Likert scale.

The structured questionnaire was designed to include general questions about housing finance at the start. Then more focused questions regarding incremental housing finance followed. The last set of questions particularly were concerned with decision-making within the institution and relationship with the overall macroeconomy.

3.7. Data Analysis Methods

The data analysis is conducted in stages. Archival reports and documents are analysed using content analysis to determine if the formal housing finance challenges are influential in the development of incremental housing finance in South Africa. A mix of content analysis and descriptive data analysis are used to analyse reports and interview responses while identifying performance risks for existing incremental housing finance.

Quantitative data analysis of secondary data using linear regressions and a descriptive data analysis of primary data collected in interviews served to determine the role played by macroeconomic factors in innovation and adoption of self-help or incremental affordable housing finance across South Africa. Similarly, a linear regression analysis of individual macroeconomic indicators was used to evaluate their impact on the growth of incremental housing finance in South Africa. This also included the use of descriptive analysis of primary data collected in interviews. Finally, using the mix of results including the, descriptive data analysis, linear regression analysis, and content analysis, the study developed a hybrid model for financing incremental/self-help housing in South Africa.

In order to explore the relationship between the macroeconomy and incremental housing finance innovations, the secondary data is analysed using the Atlas Ti tool. This tool is largely

used for qualitative data analysis and reporting. The annual reports were coded according to select concepts related to the overall case study relating to housing finance for low- and middle-income earners in South Africa. After coding, the narrative is built on the grounded theory methods discussed in Rambaree (2013).

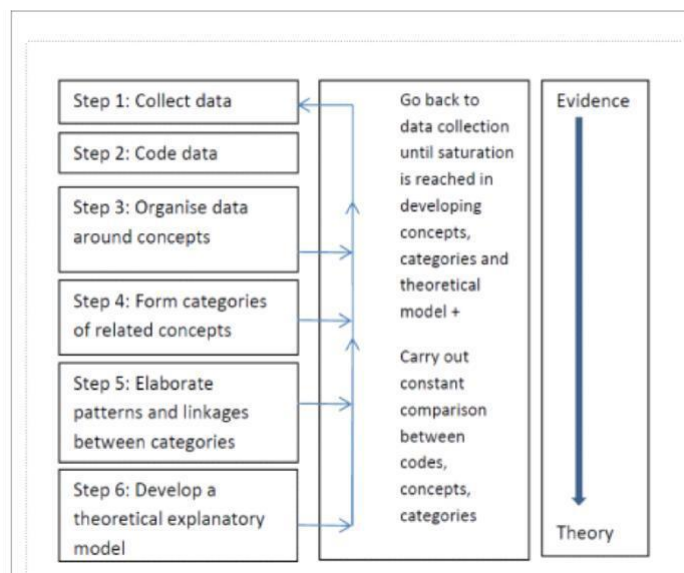


FIGURE 3.3: GROUNDED THEORY INDUCTIVE APPROACH (RAMBAREE, 2013).

In Fig 3.2. above illustrating grounded theory in the inductive approach, data is collected from qualitative sources and then coded, organized and built into categories of related concepts. These concepts are explored to discover linkages or trends that emerge which then help to build a theoretical explanation of the phenomenon in focus. The NHFC annual reports and survey responses are instrumental in developing a critical narrative on which a theory can emerge. The quantitative data collected include data variables like the Number of Incremental Loans, Value of loans approved, Nonperforming Loans, Total Number of housing opportunities, Inflation, Unemployment and Lending Interest Rate. The NHFC data points are considered to be business performance variables which are measured against macroeconomic data that have

noticeably recurred in the business reporting process. This quantitative analysis is importantly a tool to validate trends discovered in the qualitative narrative. This is supported by the notion that *"...in most cases the same method can be made to serve different theoretical/epistemological masters and, conversely, that different methods can be made to serve the same master, working in complementary ways to offer a more penetrating and robust analysis* (Crossley, and Edwards, 2016)." Trend lines are generated to visually compare the direction and movements of the selected business performance variables and macroeconomic data points. Further measure of correlation coefficients tests the relationships between the variable groups. Further simple regression analysis offers a model of the relationships between the macroeconomy and the growth of NHFC business performance indicators.

3.8. Chapter Summary

This chapter explores the research methods, the data, and analysis that are applied in the investigation of the research objectives. The objective of replicability is achieved by an elaboration on how the research was designed and executed. The results are further discussed in the next chapter.

CHAPTER 4: RESULTS AND DISCUSSION

4.0. Introduction

This chapter is concerned with the analyses of both qualitative and quantitative data collected in the course of this study. The analyses are followed by a detailed discussion and implications of the results. The study attempts to examine the NHFC's report over seventeen (17) years, between 2003-2020. As earlier noted, the motive was to develop a case study of the macroeconomic considerations that have influenced the institution's incremental housing finance interventions. The interviews conducted returned 5 out of 9 NHFC executives which represents 56% of the total interview participants.

Accordingly, the Chapter is divided into five (5) sections, including Section 4.1, which dwelt on the development of informal/incremental Housing Finance in South Africa Section 4.2. the performance risk factors affecting the Incremental Housing Finance in South Africa. Section 4.3 analyses the influence of macroeconomic market risk on the growth of Incremental Housing Finance in South Africa. Section 4.4 contains an analysis of macroeconomic market risk relative to the growth of incremental housing finance in South Africa. Section 4.5, evaluates the performance risk of the South African Incremental Housing Finance, and Section 4.6. built a framework for the South African incremental housing finance. Lastly, the Chapter summary concludes this part of the thesis.

4.1. The Development of Informal/Incremental Housing Finance in South Africa

In this first section, the time series data on major incremental housing indicators were used to give insight into its development. While formal housing finance may not be accessible to a large number of South Africans, it is important to consider how significant efforts to enable accessibility to the incremental housing finance had made to improve the situation.

Accordingly, the NHFC's report in Table 4.1 summarises the information from the now merged Rural Housing Loan Fund (RHLF), and World Bank macroeconomic data.

TABLE 4.1: NHFC ANNUAL REPORT FIGURES & MACROECONOMIC DATA FOR SOUTH AFRICA

Year	Number of Incremental Loans	Value of loans approved (R million)	Nonperforming Loans (R millions)	Total Number of housing opportunities	Inflation	Unemployment	Lending Interest Rate	Total Incremental Funding (Millions) KFW Grant KFW / DBSA Loan DHS Grant Retained earnings
2003	2,636	615	12.8	7,669	5.679418064	32.31000137	14.958333333	143,176
2004	6,763	673	12.4	11,766	0.6920301383	29.45000076	11.29166667	132,951
2005	8,557	787	28.4	12,767	2.062852225	29.12000084	10.625	130,359
2006	8,879	756	35.3	15,515	3.243901675	28.34000015	11.16666667	184,549
2007	4,556	846.6	18.9	14,443	6.17781207	26.54000092	13.16666667	143,149
2008	6,938	249	13.7	13,128	10.05528203	22.40999985	15.125	269,571
2009	2,924	511	12.6	14,863	7.264562145	23.52000046	11.708333333	278,556
2010	2,218	670	72.8	11,160	4.063538973	24.68000031	9.833333333	327,515

2011	1,613	729	4.4	9,112	5.017157733	24.63999939	9	395,267
2012	4,409	664	31.6	10,374	5.723943662	24.72999954	8.75	460,211
2013	5,334	480	15.6	27,593	5.776404135	24.55999947	8.5	504,762
2014	4,000	675	2.2	12,537	6.136020151	24.88999939	9.125	524,708
2015	0	729	35.1	9,112	4.509208278	25.14999962	9.416666667	551,359
2016	23,223	241	77.9	30,386	6.594604415	26.54000092	10.45833333	578,010
2017	27,745	306	58.6	36,153	5.181082233	27.04000092	10.375	592,773

(Source: NHFC Annual Reports 2003-2017)

Table 4.1 shows the numerical records of NHFC's activities between 2003 and 2017. The report reveals that in 2003 incremental housing finance was the major contributor of funds to the investment portfolio of the NHFC. Accordingly, the interest on loans advanced under the incremental housing finance scheme for the year under review indicates a higher return, making it the second highest returns from investments." This sets a tone for how incremental housing finance investment is perceived in terms of profitability. Instead of viewing incremental housing finance purely as a risky venture, it is important to note that there is evidence of high returns for this mode of financing.

Relative to the above, a typical example is the NHFC annual report of 2003 whereby more than R140m facilities were granted for incremental housing in South Africa. The year 2003 marked a major starting point for the development of incremental housing finance as an alternative to formal housing finance solutions like mortgages. Incremental housing finance contributed to the growth of the institution's capacity to improve housing finance affordability by increasing the lending portfolio of the NHFC. This is evidenced by the 9% growth in the lending made in the following year, 2004. The reports examined show that "total lending and advance portfolio increased by 9% from R615 million to R673 million".

Furthermore, in 2005 the NHFC reported more consistent participation by banks (National Housing Finance Corporation, 2003; National Housing Finance Corporation, 2004; National Housing Finance Corporation, 2005). This could be attributed to the steady growth in the lending capacity of the institution for low-income housing and the confidence the NHFC's impact investing efforts have introduced to the sector. However, the NHFC reports in 2006 were silent regarding the value of incremental housing finance, and this is almost immediately followed up with a worrisome report in the succeeding year. The NHFC recorded higher disbursement in terms of the value of incremental housing financing per recipient but lower numbers of

incremental loans were provided in 2006. This suggests that the housing market could have experienced a major rise in prices including construction costs. Gardner, Lockwood, and Pienaar, (2019) similarly explained this phenomenon as the result of the impact of inflation on the delivery rate and quality of subsidised housing across South Africa. Although not many people could access incremental loans in 2007, those who did, required a lot more financing to build incrementally.

"Whilst the total number of incremental loans and units were lower than budgeted, the value of disbursements almost tripled. Given that incremental loans are, by nature, small (up to R10 000), the increased value of disbursements is due to the higher average loan size for the 782 units financed through mortgage bonds. This outcome is amongst others a result of the escalating average prices of houses and lack of stock at price ranges that are affordable within the income range up to R7 000", (National Housing Finance Corporation, 2007).

In Table 4.1, a similar observation seems to dominate incremental housing finance investment within the NHFC from 2006-2009. There are fewer numbers of incremental loans originating but of greater amounts. While this suggests harsh economic conditions that impede the institution's performance in incremental housing finance, the NHFC continued to exceed disbursement and housing delivery targets. Therefore, it is possible to conclude that incremental housing finance proves resilient as a valuable component of affordable housing finance investment.

Furthermore, the year 2010 witnessed a shift to funding for housing units rather than an incremental housing development. This was in the wake of a slowly recovering economy coming out of a recession. However, this was temporary as there was a shift in 2012 which witnessed banks favouring unsecured lending as against mortgages. This led to a growth in incremental loan performance in the NHFC portfolio. "The incremental loans business

performed better as homeowners focused on improving existing properties as opposed to the purchase of new properties", (National Housing Finance Corporation, 2012).

The institution's reports noted that the affordability challenges in 2012 influenced the increased shift to incremental housing. The Centre for Affordable Housing Finance in Africa (CAHF), and South African Cities Network (SACN), (2014) similarly discussed the affordability challenge and the financing gap it created in 2012 which could explain the shift to incremental financing. This suggests that the affordability challenges experienced with formal/mortgage financing are adequately addressed by incremental housing finance. However, as shown in Table 4.1 there was a noticeable growth pattern until 2015 when a major setback impacted the unsecured lending process of the institution. The fall of the African Bank Investments Limited reduced the appetite for incremental housing lending on the part of the NHFC. The reports between 2015-2020 were significantly silent about the performance, growth, or decline of incremental housing finance as a part of the institution's investment in low-income affordable housing. This period of significant global economic shock as a result of the COVID-19 pandemic in 2020 is difficult to assess.

Number of Incremental Loans

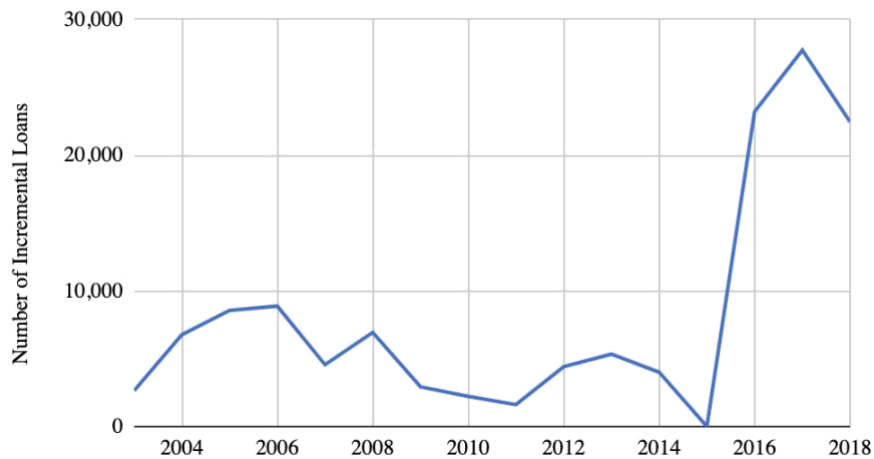


FIGURE 4.1: NHFC DATA ON NUMBER OF INCREMENTAL LOANS PROVIDED ANNUALLY (SOURCE: NHFC ANNUAL REPORTS 2003-2018)

In Figure 4.1, from 2004 till 2014 which is 10 years, the number of incremental housing loans provided by the NHFC doesn't exceed 10,000 annually. The minor growth peaks experienced are in 2006, 2008, and 2013. Marais, and Cloete (2017) explain these peaks as part of the shift in focus of lending intermediaries from mortgage to incremental housing alongside better regulation and prudent lending behaviour. The study notes that South African low-income markets were actively repaying loans considering the low rate of interest, and inflation and the government were actively attracting private sector players into housing provision even in the wake of a global crisis. However, a sharp fall in 2015 precedes a huge leap that takes the number of incremental loans provided to more than 20,000 annually between 2016-2018.

Total Incremental Funding (Millions) KFW Grant KFW / DBSA Loan DHS Grant Retained earnings.

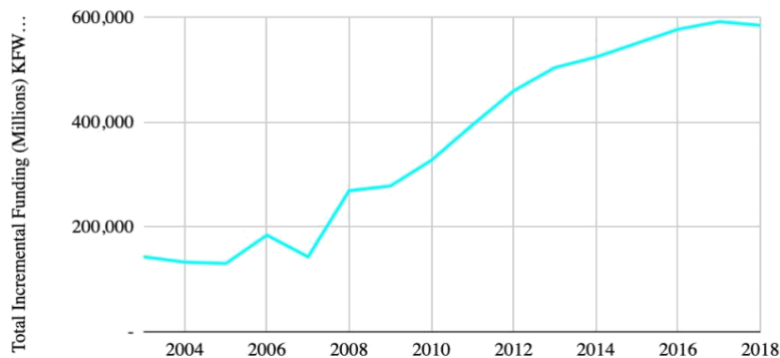


FIGURE 4.2: NHFC DATA ON TOTAL INCREMENTAL FUNDING RECEIVED ANNUALLY FROM KFW GRANT, DBSA LOANS, DHS GRANTS, AND RETAINED EARNINGS (SOURCE: NHFC ANNUAL REPORTS 2003-2018)

The NHFC's report on investment received annually for incremental housing finance was obtained to demonstrate how much faith stakeholders have placed in the product as an alternative to formal financing. In Figure 4.2, there is a steady and consistent rise in funding received from 2003-2018. This suggests that the unsecured lending/incremental housing finance option continued to meet demand and proved viable for the further commitment of investment.

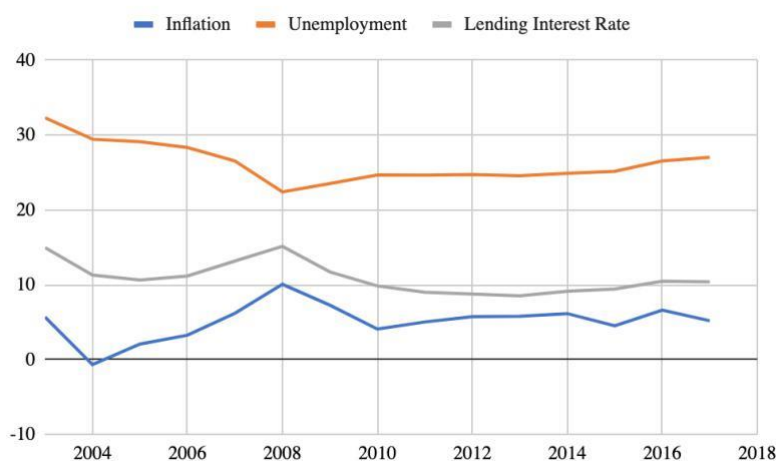


FIGURE 4.3: WORLD BANK DATA ON INFLATION, UNEMPLOYMENT, AND INTEREST RATE BETWEEN (SOURCE: WORLD BANK DATA PORTAL 2003-2018)

Considering the time series data demonstrated in Figure 4.3, it's possible to deduce that a stable macroeconomy is important for incremental housing finance and investment growth in South Africa. While this does not prove causation, the figures provide insight into how the macroeconomy and incremental housing finance have performed relative to one another.

Noticeably, the interest rate reduction in the latter parts of 2004 improved affordability for many low- to moderate-income households. The NHFC reported that there was limited availability of housing stock in response to the consequent surge in finance available for housing. The resulting market changes motivated the NHFC to pursue the government's agenda for improved housing delivery through incremental housing. This was also facilitated by the consolidation of efforts by Development Finance Institutions (DFIs) to provide risk mitigation measures for financiers. Consequently, the total lending and advance portfolio increased by 9% from R615 million to R673 million in the year 2004. However, the activity of predatory lenders significantly increased the debt burden of low- to moderate-income households and as such reduced access to long-term financing. Predatory lending practices are considered a major risk factor against the provision of incremental housing loans.

The NHFC recorded an increased engagement from banks in 2005 which was influenced by the introduction of market policies like the Financial Sector Charter (FSC) and the Community Re-Investment Act (Marais, and Cloete, 2017). When considering the macroeconomic changes during the year, the NHFC reports that there was an increased threshold on the transfer costs exemption (now R190 000), low inflation and low-interest rate levels. According to the report for the year, these macroeconomic factors positively impact the ability of households to afford housing needs. This encourages wealth growth through asset accumulation and subsequently improves the performance of incremental lending.

4.2. Performance Risk Factors affecting the Incremental Housing Finance

This section considers data on the risk factors affecting the performance of incremental housing finance in South Africa. The NHFC is the major entity that manages incremental housing financing in the country among other financing options. Thus, the results stemmed from the data that was extracted from the annual reports of the NHFC. The results were grouped into two conceptual headings; (1) challenges, and (2) performance which is reported in Table 4.2. Through the evaluation of these concepts, a pattern of risks or challenges experienced relative to the organization's performance became evident. The performance risk being faced by the NHFC is directly related to the value of incremental financing and some macroeconomic indicators.

TABLE 4.2: CONCEPTUAL QUALITATIVE ASSESSMENT OF KEY PERFORMANCE, CHALLENGES, AND IMPACTS IN THE NHFC INCREMENTAL HOUSING FINANCE PORTFOLIO.

Year	Challenges	Performance
2003	<ul style="list-style-type: none"> ● Poor performance recorded by some retail finance intermediaries and housing institutions due to deficient financial and institutional capacity. ● Throughout the year, there were concerns about improper use of loan funds for purposes other than incremental housing that remained a concern through the year, ● The prevalence of unsecure lending from intermediaries to end-users. ● A major interest rate hike that has caused an increase in both the cost and price of housing ● A growing number of institutions experiencing struggles, varying from financial difficulty and rent boycotts, to harsh market conditions, as a result of the 2002 credit bubble “burst” in the small banks and micro-finance industry. ● A challenging target market that is susceptible to job losses 	<ul style="list-style-type: none"> ● The Corporation has generally performed admirably in carrying out its mandate to provide housing finance solutions for low-income households in South Africa. ● The Corporation's Net Revenue increased principally as a result of a rise in investment income. Group operating costs decreased by 3%, but net income after taxes rose by 46%, from R81,3 million to R118,4 million.
2004	<ul style="list-style-type: none"> ● End users' weakened capacity to afford repayments. ● A socio-economic problem is the undervaluation of real estate 	<ul style="list-style-type: none"> ● A surge at the more expensive end of the housing market was a sign that affordability levels had increased generally.

	<p>funded by methods other than mortgage bonds.</p> <ul style="list-style-type: none"> • This market segment can afford to make a contribution toward its housing expenditures, but it struggles to get bank financing for housing. • To the greatest extent possible, the eight Development Finance Institutions (DFIs) must work together to provide financial institutions with risk-curtailling measures in order for those institutions to be able to support the government's accelerated delivery goal to end poverty and create jobs. • The NHFC was subjected to unacceptably onerous administrative burdens and risks as a result of the loan acquisition scheme. • Beyond RDP stock and the meagre efforts of PHP, the production of new stock for home ownership remained insufficient. • The ability of end users to get long-term financing for housing is restricted by predatory lending practices and, as a result, the debt burden. 	
2005	<ul style="list-style-type: none"> • Slow loan take-up by customers, particularly in the market's social and incremental housing segments. • The income after taxes for the year, at R65,1 million, was significantly less than the R100 million of the previous year. 	<ul style="list-style-type: none"> • Bank participation has not always been reliable up until this year.
2006		<p>With 15, 515 incremental housing loans, social housing units, and individual mortgage loans, the housing effect increased the number of housing choices for the decade to 249, 687. Compared to 2005, when it</p>

		was R65,1 million, income after taxes was R76,9 million.
2007	<ul style="list-style-type: none"> • Rising average home prices and a dearth of inventory at accessible price points for people with incomes up to R7 000 	<ul style="list-style-type: none"> • The higher value of disbursements is related to the higher average loan size for the 782 units financed by mortgage bonds because incremental loans are by their nature small (up to R10,000). • The projected amount for commercial loans in 2007 was R41,9 million, while actual disbursements came to R124,2 million.
2008	<ul style="list-style-type: none"> • We are conscious that one of our difficulties is the economy's and housing finance sector's dynamic environment. • The ability of households to repay loans and the construction of a number of the planned affordable housing developments have both been put in jeopardy by the ongoing rise in interest rates and the energy crisis. These have recently led to decreased affordability or the cancellation of new housing developments. 	Tax assessments for the years 2003 to 2006 were received during the 2008 fiscal year, resulting in a net amount of R7 million in penalties and interest and an R17 million under provision.
2009	<ul style="list-style-type: none"> • The average size of the incremental loans has increased from the planned R5 000 in the budget to between R6 500 and R10 000 in practice due to the increases in material prices. Disbursement preferred mortgage loans rather than incremental housing loans. As a result, fewer loans were given out. • Conditions in the market where the NHFC operates have led many participants, especially banks, to adopt extremely cautious lending practices. 	<ul style="list-style-type: none"> • It was encouraging to see that NHFC was still able to deliver more units than it had ever sponsored in a single year despite the extremely challenging circumstances. • It is encouraging to learn that expenses for the year were 20% higher than anticipated.

2010	<p>Lenders are still wary in our markets, and it is still very difficult to get financing for affordable homes.</p> <p>The NHFC's economic activities are subject to the biggest and most significant risk, which is credit risk.</p>	<p>The European Investment Bank (EIB) and the Agence Française de Développement (AFD) have both agreed to provide the Corporation with external money in the amount of 20 and 30 million rands, respectively.</p>
2011	<p>NA (Incremental Lending was not sufficiently addressed in this report)</p>	<p>NA (Incremental Lending was not sufficiently addressed in this report)</p>
2012	<p>There was a noticeable movement in preference from owning to incremental housing due to the market's difficulties with affordability. The value of disbursements, leveraged money, and impact of leveraged through others were all negatively impacted by this.</p>	<p>The net growth in loans and advances throughout the course of the year has been a major contributor to the rise in the overall asset base. These grew by a net amount of R268 million, which was less than anticipated because our clients' loan approvals and drawdowns happened more slowly than anticipated.</p>
2013	<p>Uncertainty and generally slow economic growth; labour unrest brought on by workers' demands for better wages; deterioration in the industrial and retail sectors; high household debt levels; and tougher credit standards to households; and change in the regulatory environment</p>	<p>The kind of products that were approved was a clear indication of how the economic environment affected our clients and end consumers. Home ownership was replaced by incremental housing, instalment sales agreements, and private rentals as a result of end-user affordability levels and a generally poor adoption of home ownership units due to the lowering rate of traditional mortgage bonds.</p>
2014	<p>The NHFC has also observed that its non-banking retail intermediaries, who offer solutions, mostly for incremental housing, continue to have a poor desire for wholesale funding.</p>	<ul style="list-style-type: none"> • The quality of the loan books has significantly deteriorated, placing strain on the business. The main market participants have shown low profitability and increased impairments and write-offs of bad debt as a result of this. • According to the NHFC, the prolonged lack of interest in mortgage financing has had an impact on the kind of

		disbursements, with less activity in new developments for sale and a persistently high rise in developments for rental, particularly in the social housing sector.
2015	Since the demise of the African Bank Investments Limited, the unsecured lending market—through which we do our wholesale lending business—has suffered.	
2016	NA (Incremental Lending was not sufficiently addressed in this report)	NA (Incremental Lending was not sufficiently addressed in this report)
2017	<p>The impact of the growing non-performing portfolio continues to threaten the NHFC's profitability.</p> <p>Increased settlements over the past three years, including R131 million this year, have been caused by certain clients moving to the official banking sector. Although settlements are seen as a sign of maturity in a development finance institution's position, they have a negative effect on revenue due to lost interest income.</p>	<p>Investment revenue surpasses budget by R40 million due to early settlements and extra cash kept for upcoming distributions.</p> <p>Impairments and bad debts of R59 million for the group and R95 million for the firm were mostly caused by the fact that the market has remained difficult, which has a negative influence on our clientele's capacity to raise capital and be profitable.</p>
2018		Asset growth is backed by high-quality revenue from a portfolio that encourages sustainability. However, the slow economic expansion, the general state of the market, the lack of substantial shareholder support, and all three have an impact on growth.
2019	Non-Performing Social Housing Institutions have a substantial negative impact on NHFC and endanger its ability to continue adhering to its	At the end of the fiscal year, there were R31.2 million in pledges to community-based organizations and black and women-owned

	financial covenants.	intermediaries, but only R6.5 million had been paid out to them overall.
2020	<p>Due to clients delaying payments in Quarter 4 because of COVID-19 concerns, the business environment that prevailed toward the conclusion of the financial year-end had a negative impact on our intermediaries and resulted in decreased disbursements.</p> <p>Although the full effects of the epidemic and the lockdown measures are not yet known, they have increased social demands, increased unemployment rates, and the economic inequality gap, all of which will persist long until 2020.</p> <p>Additionally, many people have suffered a significant decline in their financial capacity to purchase real estate due to the extremely bleak outlook, particularly with the world gripped by the COVID-19 pandemic.</p>	

(Source: NHFC Reports, 2003-2020)

Table 4.2 shows the performance risks and challenges faced by the NHFC for the period under review. There are institutional, macroeconomic uncertainties and rising interest, formal finance competition, and lack of recognition of incremental property value, among others. Accordingly, the results show that in 2003, there was an increase in the cost and price of housing which negatively impacted affordability for prospective homeowners in the low-income groups. This increased house price was directly attributed to a hike in interest rates. Similarly, the 2002 credit bubble burst and market strains also contributed to the reluctance of banks and other microfinance institutions to lend for housing. Consequently, incremental housing finance became more desirable for a number of more borrowers.

Furthermore, the government's abolishment of transfer tax and stamp duty removal for houses valued at less than R140,000 increased affordability and interest in incremental housing finance for the NHFC's target market. However, the NHFC also noted that disbursements lagged compared to approvals as the institution had to be more prudent in disbursing to only viable projects and worthy borrowers. Also, in assessing market risk between 2002-2003, the target market of the NHFC was deemed highly susceptible to job losses which meant that increasing unemployment in economically volatile times impacted risk management practices. Some of these practices include using quarterly varying interest rates, increased organizational liquidity, and interest rate swaps.

Table 4.3 further shows that affordable housing finance continued to grow through 2006 and 2007. The NHFC reports that net advances grew from R672,7 to R787,1 million in 2006, and R1,9 billion since inception. Furthermore, total approvals in the same period were recorded at R2,36 billion. In 2007, the interest rate jump caused an increase in overall revenue for the NHFC. However, the organization experienced higher impairments or defaulting from two

major intermediaries which suggest that interest rate jumps may not have been favourable for incremental housing finance borrowers. It's also important to note that even though the total number of incremental loans and units was lower than budgeted, the value of disbursements almost tripled. The increased value of disbursement was attributed to a higher average loan size which suggests increasing housing prices.

The year 2008 recorded major changes in how the NHFC monitored the impacts of the macro-economy on the incremental housing finance agenda. Consequent to increases in the Reserve Bank's interest rates, the ability of low to middle-income earners to pay back loans dropped significantly. This brought greater awareness to the institution concerning the ever-changing nature of the macro-economic environment and housing finance. Furthermore, the report in 2008 stated that the continued interest rate growth, fuel hikes, rising inflation and energy problems threatened both the ability of households to repay loans and the development of some planned affordable housing projects.

TABLE 4.3: INTEREST RATE SENSITIVITY TOOL

	Increase/decrease %	2008 Effect on profit before tax R'000	2007 Effect on profit before tax R'000
Loans and receivables	-1	9295	8466
Loans and receivables	-1	(9295)	(8466)
Investments	-1	16118	14083
Investments	-1	(16118)	(16118)
Government funds under management	-1	4936	5472
Government funds under management	-1	(4936)	(5472)

(Source: NHFC Reports, 2008)

Table 4.3 illustrates the tool that the NHFC developed to check the sensitivity of the company's portfolios to a 1% decrease in interest rate as seen in the table above. Considering this small change interest rate as a way to test sensitivity offers insight to how the NHFC anticipates market risk using macro-economic data. This tool, though simple to use, only checks against one macro-economic indicator and this validates the macro-economy as a viable risk mitigation tool. However, it suggests an increased interest in monitoring the macroeconomic as a tool for risk mitigation within the NHFC.

4.3. The Influence of Macroeconomic Market Risk on the Growth of Incremental Housing Finance in South Africa

This section is focused on evaluating the implication of macroeconomic risk factors on the growth or performance of NHFC incremental housing finance in South Africa. The qualitative data extracted from surveys demonstrate key NHFC stakeholders' perception of how the institution influences affordability of housing finance and the role of the macroeconomic environment in growing incremental housing finance. The data collected is summarized in Table 4.4.

TABLE 4.4: IMPACT OF MACROECONOMIC INDICES ON INCREMENTAL HOUSING VALUE

Year	Value of Incremental Housing in NHFC portfolio	Macroeconomic Impacts
2003	<ul style="list-style-type: none"> The NHFC receives its second-largest income after investments from incremental housing, which offers the best returns in terms of interest collected on loans. 	<ul style="list-style-type: none"> A significant rise in interest rates. the removal of stamp duty and the elimination of transfer fees for real estate transactions involving residences valued at less than R140 000 (up from R100 000 the previous year). This helps to stimulate effective housing demand while lowering housing costs for the targeted consumers.
2004	<ul style="list-style-type: none"> The total lending and advance portfolio climbed 9% during the course of the year, rising from R615 million to R673 million. 	In the latter part of the year, interest rates were significantly cut, which helped low- to moderate-income people by lowering the cost of housing.
2005		<ul style="list-style-type: none"> Lower interest rates and sluggish client loan take-up Low inflation and interest rate levels, as well as an increased threshold for the transfer expenses exemption (currently R190 000), both of which were announced in the Budget 2005/2006.
2006	NA (Incremental Lending was not sufficiently addressed in this report)	NA (Incremental Lending was not sufficiently addressed in this report)
2007	Lending through intermediaries (commercial) despite the fact that the overall number of incremental loans and units was less than anticipated, the amount of disbursements nearly tripled.	With R165,9 million in total income, it exceeded expectations in part because interest rates rose over the course of the year.

2008		<ul style="list-style-type: none"> • The Reserve Bank's interest rate increases significantly impacted the low-to middle-income earners' capacity to fulfil their obligations under loan arrangements. • The target market for the NHFC was severely impacted by increasing inflation, gasoline price rises, and rising interest rates.
2009	<p>In the second half of the year, the demand for incremental home loans rose up after it had been slow in the first half. By year's end, 90% of the budget had been met, however for larger individual loan amounts and fewer loans overall.</p>	<p>While the lower-to-middle income earner's debt burden was lessened by the 4.5% interest rate drop, the majority was still trapped in debt. Increased unemployment made this worse. Even the bigger lenders in the market have been impacted by the unfavourable economic climate, rising default rates, and generally challenging trade conditions. The decrease in interest rates is anticipated to have a detrimental effect on the NHFC's revenue.</p>
2010	<p>More money is being spent on financing housing units than on making home upgrades or taking out incremental loans, which has changed the composition of the commercial book.</p>	<p>Growth rates, cash flow predictions, and business risk modelling are some examples of the valuation assumptions that have been directly impacted by economic uncertainty and market volatility.</p> <p>Despite a trend of falling interest rates beginning at the end of 2008 and continuing through 2009, households continued to face some financial strain as a result of significant job losses across a wide front, declining real disposable income, and comparatively high debt levels.</p>
2011	<p>NA (Incremental Lending was not sufficiently addressed in this report)</p>	<p>NA (Incremental Lending was not sufficiently addressed in this report)</p>
2012	<p>The division's primary area of focus is wholesale lending to retail intermediaries who offer end users mortgages and incremental loans</p>	

	for home improvements. Mortgage lending overall in South Africa has been under strain for a number of reasons, including banks' preference for unsecured lending. Homeowners concentrated on enhancing their current residences rather than investing in new homes, which improved the performance of the incremental loans company.	
2013		<p>Despite low interest rates, the South African economy is still struggling.</p> <p>The year was distinguished by a considerable uptick in business development, which resulted in a sizable number of approvals totalling R1,4 billion, creating a strong pipeline for subsequent payments.</p>
2014		<p>The economic environment, which is characterized by slow economic development, high household debt levels, high unemployment, and growing regulatory burden, continues to put a strain on the NHFC's risk management.</p>
2015	Since the market for this product is heavily indebted and has little to no capacity to take on more debt, unsecured incremental housing business was not actively pursued.	<p>Due to South Africa's GDP growth slowing to 1.5% in 2014 from 2.2% in 2013, the country's economic climate deteriorated during the year under review. This growth rate is still well below the economy's potential and what is needed to significantly reduce unemployment.</p> <p>In a climate of sluggish economic growth, the South African Reserve Bank has the problem of maintaining the inflation targets. The exchange rate, wage agreements, and electricity price rises are a few of the major dangers to inflation. Over the past year, the Rand has gotten worse when compared to a basket of currencies.</p>

2016	NA (Incremental Lending was not sufficiently addressed in this report)	NA (Incremental Lending was not sufficiently addressed in this report)
2017		The households and clients of the NHFC continue to suffer as a result of the current depressed economic and market conditions, which has an effect on both the growth rate and the calibre of the advances book.
2018		<p>Up until the end of 2017, both the planning and construction phases of the building market (for new privately financed housing) remained largely dormant. This is primarily because of the country's slow economic growth, which is reflected in the GDP growth of 1.3% for the year that ended on December 31, 2017.</p> <ul style="list-style-type: none"> • Prudent forecasting taking into account the impact of a poor economy
2019	Bank for Southern Africa's Development (DBSA) RHLF was founded by The DBSA many years ago, and this financial arrangement allowed RHLF to grow up the distribution of incremental loans in rural areas.	As a development finance institution, we believe it is our duty to make countercyclical investments and stimulate the economy, however minimally possible given the size of our balance sheet.
2020		A portion of this lack of use of licensed facilities by some incremental housing finance intermediaries can be attributed to the poor economic growth and difficult economic conditions, particularly the high unemployment rate.

(Source: NHFC Reports, 2003-2020)

In the NHFC's 2009 reports, the organization describes its market risk paradigm. The organization describes market risk as the risk of a fall in the market value of a portfolio of financial instruments caused by an adverse movement in market variables. Also, in this paradigm, the risk the organisation considers is that of a downward interest rate movement and the impact on its investment, loans and receivables portfolios.

To illustrate this, in Table 4.4, there was a recorded 4.5% interest rate reduction which eased the borrowers' debt burdens. Similarly, lenders in the market, like the NHFC, found the market uncondusive for lending as defaults increased. The organization's revenue was therefore projected to fall in the following year. In the wake of the 2008 global financial crisis and recovery efforts, the NHFC continued to grow its portfolio. This growth was as a consequence of the growing preference for unsecured lending as many more households couldn't qualify for a formal mortgage. However, in 2010 it significantly disbursed less to incremental housing finance. The organization's risk management was heavily challenged by the rapidly changing global economic environment and the lagging recovery in the local economy. The 2010 report states that:

"The Year under Review The 2009/2010 financial year was clearly a difficult one, particularly in the human settlements development and financing sector. This is despite the successful global policy stimuli, which have edged the world economy into a recovery and rebuilding phase".

The global economic uncertainty catalysed the need to evaluate how much uncertainty the organization can take. Significantly, the NHFC was able to secure further funding in the form of an AFD loan facility, in November 2009 which demonstrates sustained confidence in the affordable housing market. This was despite the bleak economic outlook.

Table 4.4 shows that NHFC's largest and most material risk was credit risk resulting from economic activities affecting the target market. Accordingly, the corporation's macroeconomic risk resilience was proven effective during the 2008-2010 global financial crisis and recovery. The 2008-2010 global economic recovery impacted the slow take up of incremental loans experienced in 2009 and subsequent preference for completed buildings. The impact of the reserve bank's interest rate reduction only slightly improved affordability for incremental homeowners. This slight impact was counteracted by the increasing unemployment which increased the debt burden of many households in the incremental housing target market. However, in 2012, the NHFC recorded a significant shift from mortgages to incremental housing finance. This shift was attributed to the preference for unsecured lending by banks in South Africa. It is possible that the pursuit of economic recovery influenced the heightened commitment to informal/incremental housing finance.

Thus between 2010-2013, the NHFC annual reports emphasized the role of the slow economic recovery of South Africa on the performance of incremental housing finance. This period witnessed increased concern for prudent risk management and subsequent reduction in the amount of financing disbursed for incremental housing despite decreasing interest rates. Labour practices and employment were consistently key macroeconomic considerations for the NHFC in the period between 2010-2013. Furthermore, poor manufacturing and retail, household debt levels, and wage levels impacted financing negatively.

4.4. Macroeconomic impacts on Household Income levels

Considering the need for investors to understand the overall behaviour of the low-income housing market, the NHFC reports in Table 4.4 on the value of the NHFC incremental finance and the attendant macroeconomic impacts. This relationship is critical to understanding the

institution's decision-making process, the macroeconomic risks that are significant for investors, financiers, and other stakeholders. Accordingly, between 2003-2014, the interest rates set by the reserve bank stood out as the major impact on household income. The NHFC reports also mention the impact of the GDP on the target market in 2015 and 2018. Similarly, Marais, and Cloete (2017) noted that inflation in 2015 and the 2014 recession impacted households and affordability levels. In 2003, the NHFC recorded a positive overall performance in affordable housing financing. However, this was not without significant challenges including the poor performance of housing institutions and retail intermediaries. The NHFC surveyed on rent-boycotts and non-payment that some housing institutions reported in 2003. The result of this survey showed that among many reasons, the challenges were caused by:

1. The affordability constraints that affect the majority of low-income earners.
2. The struggles to strengthen institutional governance and management.
3. Poverty.
4. Financial and institutional incapacity.

In the survey conducted on rent-boycotts and the reasons for the non-payment experienced by some of the housing institutions, the NHFC identified the following as key lessons to be learnt:

- Affordability constraints are a reality for many low-income earners;
- Institutional viability is often threatened by poor governance and management, as well as the lack of adequate financial and institutional capacity; Until the issues of poverty and affordability are dealt with or mitigated, the sector will not be able to attract private sector investors.

The NHFC's appreciation of the challenges plaguing the affordable housing market in South Africa ensured that the incremental housing finance instrument continues to respond to macroeconomic changes in order to achieve inclusive housing.

4.5. Performance Risk of the South African Incremental Housing Finance

This section is concerned with the perceived risks that affect housing finance in South Africa. Several elements affect the performance of a sector or an organisation. While some of these elements enhance a sector's performance, others impede its performance. Accordingly, to understand the performance of the NHFC in South Africa, the officials were interviewed, and the results are summarised in Table 4.5.1-6 and Figure 4.5.1-6.

TABLE 4.5: NHFC EXECUTIVE FAMILIARITY WITH THE INCREMENTAL HOUSING FINANCE SOLUTIONS DESIGNED FOR THE LOW-INCOME SOUTH AFRICANS.

Incremental housing finance familiarity (scale 1-7)	Frequency	Percentage %
7	4	80%
6	1	20%
1	0	0%
2	0	0%
3	0	0%
4	0	0%
5	0	0%

All the NHFC respondents confirmed a high-level knowledge of the incremental housing finance solution with 80% rating their knowledge a 7 on a scale of 7. The result on Table 4.5.1. shows that the NHFC executives are familiar with incremental housing finance and its activities.

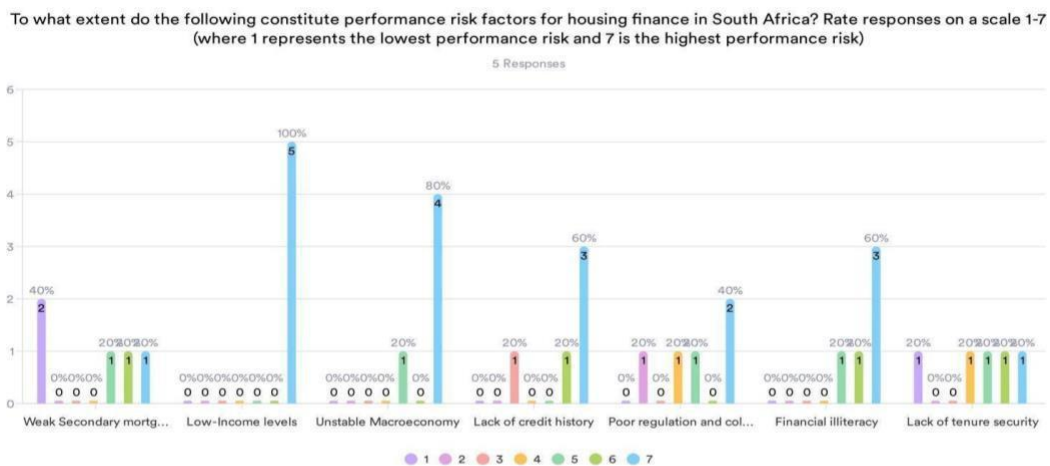


FIGURE 4.4: BAR CHART OF THE PERFORMANCE RISK RATING OF THE SOUTH AFRICAN INCREMENTAL HOUSING FINANCE

The analysis in Figure 4.4 showed that all (100%) of the NHFC executives identified low-income levels of the target market for incremental housing finance as a significant performance risk factor that impedes the access to housing finance in South Africa. This is rated at 5 on a scale of 7 which was expected because the focus of this study is how incremental housing finance is used to benefit the low-income earners who are seen as major beneficiaries of incremental housing. Similarly, a majority (80%) of executives rated unstable macroeconomic conditions 4 out of 7 on the scale for measuring performance risk factors.

Next on the rating scale was financial literacy which was rated 3 out of 7 by 60% of the executives. Interestingly, the lowest rating was linked to lack of tenure security which suggests that tenure

security doesn't constitute so much of a challenge to incremental housing finance. This could be explained by the fact that these are typically small-sized loans that are often unsecured and do not require collateral to access. Additional responses from NHFC executives revealed the following facts summarised in Table 4.6.

TABLE 4.6: PERFORMANCE RISK RATING AND INCREMENTAL HOUSING FINANCE

<i>Housing Finance Affordability in South Africa</i>	<i>Response from NHFC Executive (NE)</i>
<p>The Mortgage market in South Africa is well developed. The challenge is that borrowers in the low-income levels are, in the main, not able to access mortgage finance in South Africa, and as a result the best option for them is incremental housing finance which is well regulated in terms of the National Credit Act.</p>	<p>NE1</p>
<p>In order to improve it is important to consider the factors that limit people from accessing financial assistance.</p>	<p>NE2</p>
<p>An area that is missed is the lack of housing stock for households earning below R22k per month. The housing shortage in this market is roughly 2 million units, and if this grows in line with population growth will grow at 23 000 units per annum. Currently about 20 000 units are being constructed annually for this market, and this includes rental stock.</p>	<p>NE3</p>

As explained in Table 4.6, incremental housing finance is also well developed within a regulated framework that makes it an ideal alternative to mortgage finance, especially for low-income earners. More information on the workings of the NHFC relative to incremental housing finance was obtained through the interviews with the executives as noted earlier. Accordingly, the NHFC executive coded NE1 reports as follows:

"The Mortgage market in South Africa is well developed. The challenge is that borrowers in the low-income levels are, in the main, not able to access mortgage finance in South Africa, and as a result the best option for them is incremental housing finance which is well regulated in terms of the National Credit Act."

The report of respondent NE1 shows the extent to which the South African mortgage market has grown with a high potential of solving the housing deficit in the country. However, the challenge is still the borrowers' low-income level which implies that although the mortgage market is virile, the beneficiaries will not be able to repay. This further justifies the need for the introduction of incremental housing finance which is perceived to accommodate low-income earners. While incremental housing finance is an alternative to formal mortgage finance, the question that must be answered in this study is the extent to which it has solved the housing deficit in South Africa.

Similarly, the unavailability of housing stock specifically targeted at income levels below R22,000 is a mandate that the NHFC is set to tackle through incremental housing finance. Incremental housing finance presents a viable alternative for households who ordinarily would not have accessed housing. Consequently, another research participant, NE3 further explained this:

An area that is missed is the lack of housing stock for households earning below R22k per month. The housing shortage in this market is roughly 2 million units, and if this grows in line with population growth will grow at 23 000 units per annum. Currently about 20 000 units are being constructed annually for this market, and this includes rental stock.

This commentary by the respondent NE3 emphasizes the gravity of the housing stock shortage which formal housing finance is grossly unable to satisfy.

However, with incremental housing finance, individuals can add to the housing stock available and boost the development of affordable housing for all. The NHFC, therefore, stands out as a significant stakeholder in addressing the housing deficit across South Africa due to the nature of financing targeted at South Africans that would not typically qualify for mortgage financing. This agrees with findings by (Gardner, 2008) in a study that examines South Africa's housing stock deficit. However, the need to encourage private sector investment in incremental housing necessitates an inquiry into how incremental housing responds to the challenges preventing mortgage finance from addressing the existing housing deficit.

The NHFC surveyed results on this inquiry is illustrated in Figure 4.5.

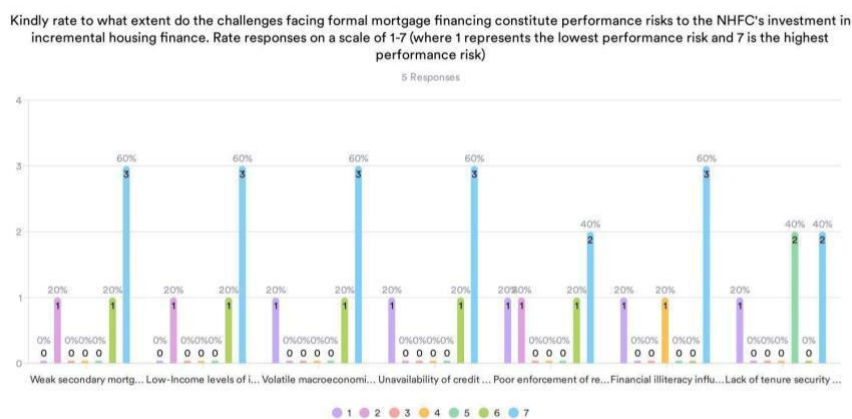


FIGURE 4.5: BAR CHART OF THE IMPACT OF FORMAL MORTGAGE FINANCING CHALLENGES ON THE NHFC'S INVESTMENT IN INCREMENTAL HOUSING FINANCE.

In comparing incremental housing finance to formal/mortgage finance, NHFC respondents in Figure 4.5 suggest that it's not the same challenges plaguing both instruments. The highest rating (60%) for any formal/mortgage finance challenge was a 3 out of 7. This rating was applicable for a weak secondary mortgage market, low-income levels, volatile macroeconomy, financial literacy, and unavailability of credit history. The responses suggest that NHFC executives are largely indifferent concerning the risk posed by formal housing finance challenges to the development of incremental housing finance.

Furthermore, these ratings confirm that incremental housing finance, despite its own challenges, is indeed an alternative that does not share the same challenges that formal housing finance faces.

More so, NE1 interviewed stated that:

Lack of mortgage finance is a positive for performance of the incremental sector - people who cannot access mortgages are forced to use incremental. In addition, the incremental enables people to overcome the shortage of stock by building their own homes. Incremental is always (as far as I know) unsecured so there is no issue around collateral security. Lack of tenure is a huge issue in rural areas where people rely on 'permission to occupy' from a chief, who can decide not to allow heirs to take on what has been constructed.

In the comment made by the NHFC executive, it becomes clearer that the failure of mortgage financing promotes the growth and adoption of incremental housing finance. This might be explained by the fact that households who cannot qualify for mortgages would find unsecured lending attractive. Considering that incremental housing finance is not impacted significantly by the same challenges facing formal financing options like mortgages, Figure 4.5 assesses NHFC executives for the perception of challenges that are unique to this form of financing.

Kindly rate from the following options the impact of performance risk factors facing the growth of incremental (informal) housing finance in South Africa Rate responses on a scale of 1-7 (where 1 represents the lowest impact and 7 is the highest impact)

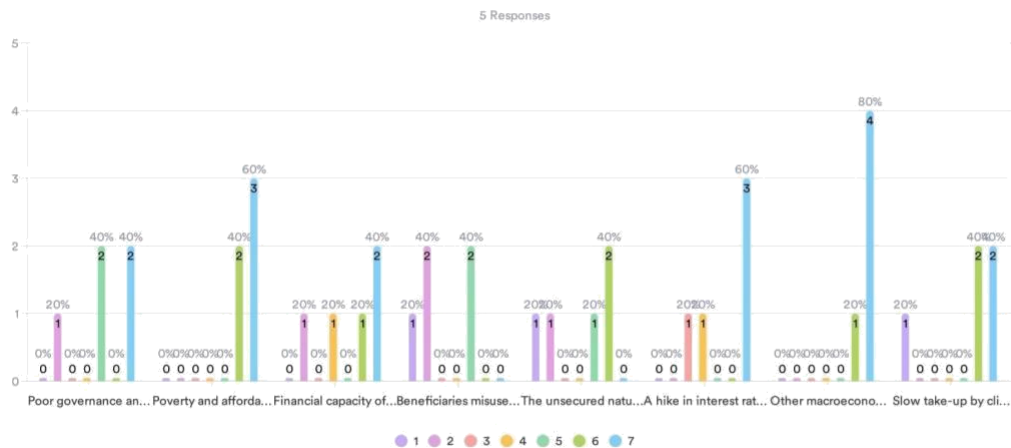


FIGURE 4.6: EVALUATING UNIQUE PERFORMANCE RISK FACTORS FACING INCREMENTAL (INFORMAL) HOUSING FINANCE IN SOUTH AFRICA

Figure 4.6 considers incremental housing finance performance risks independently. The survey respondents rated the macroeconomy higher than any other factor that can influence growth. 80% of the respondents rated this risk 4 on a scale of 1-7. This suggests that the macroeconomy plays a significant role in incremental housing finance provision.

According to NE1 interviewed:

Incremental housing finance is largely accessed by low income earners who are most susceptible to economic shocks that we are seeing currently in the market. The low economic growth and high unemployment is a major challenge. Few working people have too many mouths to feed thereby leading to the failure in meeting affordability assessment test and ability to take incremental housing loans.

The implication of this result is that a lot of those who qualified for incremental housing loans were not favoured because of the changes in the macroeconomic indicators on household income. Also, it is important to note that major economic shocks might affect the ability of these low-income households to prioritise repayment of housing loans.

Respondent NE2 stated that the NHFC found that since the start of the COVID-19 pandemic a number of incremental housing finance recipients or the target market focus on consumption.

According to NE2 interviewed:

Recipients are often using their creditworthiness to purchase for consumption – i.e. survival rather than to build assets. This leads to them being too indebted to then borrow for housing.

Considering how impacted incremental housing finance is by macroeconomic challenges, it becomes critical to determine if it can improve affordability in housing provision.

TABLE 4.7: THE VALUE OF INCREMENTAL HOUSING FINANCE AS A VIABLE AND AFFORDABLE ALTERNATIVE

Perception of Incremental Housing Finance Affordability (Scale 1-7)	Frequency	Percentage %
7	4	80%
6	1	20%
1	0	0%
2	0	0%
3	0	0%
4	0	0%
5	0	0%

In Table 4.7 the survey conducted with NHFC executives shows 80% of the respondents who confirm that incremental housing finance increases the level of housing affordability for low and middle-income households in South Africa. NE1 further stated that the short-term nature

of incremental housing finance makes it an ideal option for many households. The respondent further opined that:

Because of its short term nature as opposed to mortgage finance, incremental housing finance stand as the best option to many households to improve their housing conditions as they build one brick at a time as opposed to buying or building a complete house all at once which mortgage finance is able to deliver.

Similarly, NE2 reported that the impact of incremental finance extends to RDP housing which improves how households can build incrementally. The respondents also explain that asset growth is a major advantage of the incremental housing finance solution for low-income households who ordinarily wouldn't have had any assets.

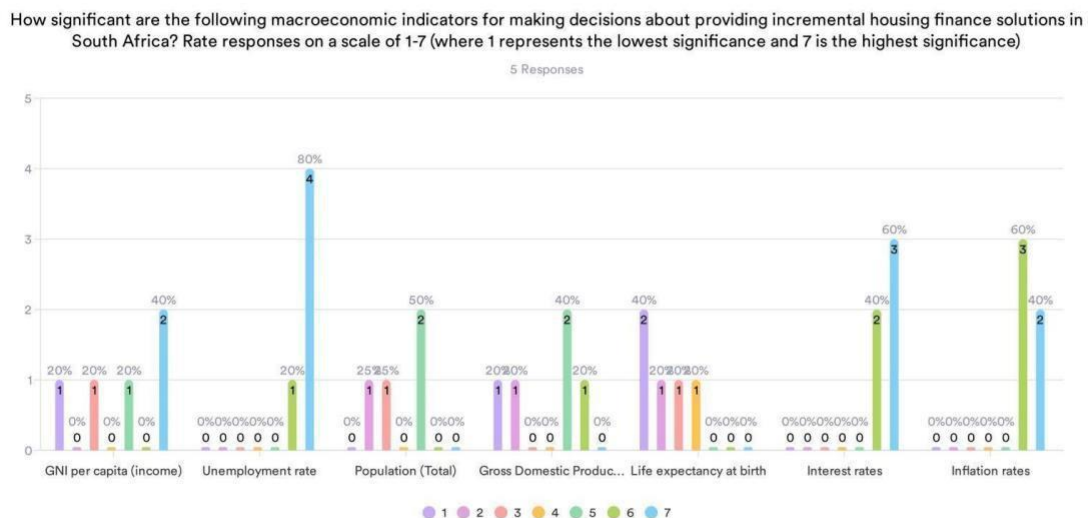


FIGURE 4.7: THE ROLE OF MACROECONOMIC INDICATORS IN THE DEVELOPMENT OF INCREMENTAL HOUSING FINANCE

As seen in Figure 4.7, three (3) top macroeconomic indicators that influence incremental housing finance according to this survey are unemployment, inflation, and interest rates. NE1 explains this position further:

Unemployment is significant in that with high unemployment the market is reduced for incremental housing finance plus the fact that few members of households who still

have jobs have a high dependency rate. Interest rate is also significant as it impacts on the loan repayment ability. Inflation rate is significant in that as inflation rate increases, it erodes the disposable income and reduces the affordability levels for taking incremental housing loans--it ultimately leads to postponement of housing improvement decisions as households opt to put food on the table rather than improving housing conditions now!

The above comment by the NE1 demonstrates the impact of unemployment, inflation, and interest rates on disposable income. It ties back to the fact that macroeconomic influences severely affect low-income households by determining how much pressure is on the need for consumption compared to the need to repay housing loans. Considering that incremental loans are unsecured, these factors must be considered when making decisions about lending for incremental housing. In responding to the interview about the role of these macroeconomic indicators, another NHFC executive stated that incremental lenders prioritise the unemployment rate as a basis for deciding how aggressively to access the market.

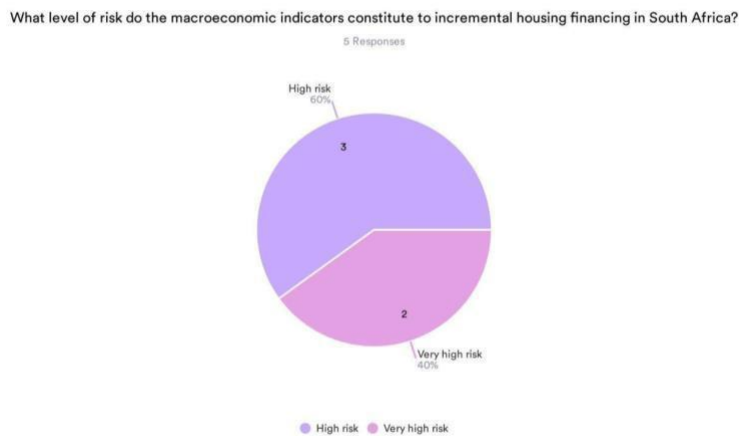


FIGURE 4.8: PIE CHART MEASURING PERCEPTION OF MACROECONOMIC RISK IMPACT ON INCREMENTAL HOUSING FINANCING IN SOUTH AFRICA

Considering how severe the impact of the macroeconomy is on incremental housing finance, Fig 4.9 is a chart of the NHFC executives' risk perception. Most of the respondents believe that

macroeconomic changes constitute High Risk (60%), or Very High Risk (40%). This confirms the notion that the incremental housing finance market caters to a target market that is a high risk, especially in response to economic shocks.

TABLE 4.8: MACROECONOMIC RISK IMPACT ON INCREMENTAL HOUSING FINANCING IN SOUTH AFRICA

Macroeconomic risk impact	Executive (Respondent)
<p>As alluded to above, the market for incremental housing finance in South Africa is mainly low income earners who are very susceptible to macroeconomic shocks as a result of high inflation rates, unemployment rate, low economic growth and so on.</p>	NE1
<p>Political, economic, social, etc. have a direct impact on incremental housing.</p>	NE2
<p>When the economy and unemployment decline, and inflation rises, people need to switch their spending from assets such as houses to food and utilities purely to survive. Research by TPN indicates that unsecured loans are the second last on a priority list for payment in economic distress (after school fees)</p>	NE3

As shown in Table 4.8, NE1 interviewed holds that:

The market for incremental housing finance in South Africa is mainly low-income earners who are very susceptible to macroeconomic shocks as a result of high inflation rates, unemployment rate, low economic growth and so on.

Marais and Cloete (2017), similarly agree that the target market of incremental housing finance is heavily affected by macroeconomic pressures which are further influenced by the global economy. This suggests that in developing incremental housing finance, these target markets must be considered in light of the level of risk that this market is exposed to as a result of macroeconomic shifts in inflation, unemployment, and other growth indicators.

It was also the general consensus that people within the incremental housing finance target market tend to prioritize consumption when the economy declines, and inflation rises.

According to NE3, the majority of the low-income groups:

Need to switch their spending from assets such as houses to food and utilities purely to survive. Research by TPN indicates that unsecured loans are the second last on a priority list for payment in economic distress (after school fees).

This suggests that it is possible to anticipate changes in repayment commitments based on inflation trends

TABLE 4.9: MACROECONOMIC RISK IMPACT ON INCREMENTAL HOUSING FINANCING IN SOUTH AFRICA

<i>Macroeconomic Impact Perception</i>	Executive (Respondent)
<p>If we have high interest rates and inflation - this affects our decisions because the targeted end-users cannot be assisted if they are affected by these factors. Affordability will not be there.</p>	NE1
<p>Macroeconomic indicators play a large role in the performance of incremental housing finance and therefore this informs the decisions taken about incremental housing finance. The beneficiaries or end users of the incremental housing products are most affected by indicators such as the unemployment rate, and therefore utilize loans for consumption to fill the needs as opposed to utilizing the loans for housing needs. This directly affects the decision making of the NHFC as well as its retail intermediaries.</p>	NE2
<p>When targets are set, consideration is given to the outlook of the macroeconomic environment.</p>	NE3
<p>Cost of capital, cost of building material, increases in interest rates. increases in fuel prices</p>	NE4
<p>NHFC lends to intermediaries who access the market. We look more at the quality of the intermediary book (which is obviously affected by macroeconomic factors) rather than the general economy. As a development finance institution one of our functions is to ensure that the economy keeps going - so our lending will at times be counter cyclical.</p>	NE5

The macroeconomy is an important indicator of the state of national affairs and the well-being of those within the economy. Table 4.9 confirms that macroeconomic indicators can provide useful information regarding how well the members of different economic groups are responsive to financing solutions. Interview responses demonstrated some of the insights that can be garnered from macroeconomic indicators.

The NHFC executives unanimously agree that the decision-making is affected by the macroeconomy which also significantly affects affordability.

NE2 stated that:

Macroeconomic indicators play a large role in the performance of incremental housing finance and therefore this informs the decisions taken about incremental housing finance. The beneficiaries or end users of the incremental housing products are most affected by indicators such as the unemployment rate, and therefore utilise loans for consumption to fill the needs as opposed to utilising the loans for housing needs. This directly affects the decision making of the NHFC as well as its retail intermediaries.

Similarly, other executives mentioned that the macroeconomic outlook helps executives in setting targets, estimating the cost of capital, cost of building materials, and other projections that help to mitigate the risk of poor repayment.

Another critical point to note is that the NHFC is a development financing institution (DFI) which means that lending may sometimes be counter-cyclical and the organization might have to go against the tides. This means that even in unfavourable economic conditions, the NHFC makes an effort to stimulate market growth through financing.

TABLE 4.10: THE ROLE OF MACROECONOMIC DATA IN INVESTMENT DECISIONS FOR INCREMENTAL HOUSING FINANCING IN SOUTH AFRICA

Investment Decision-Making	Executive (Respondent)
<p>The Macroeconomic data plays a critical role in our decision making, since we use intermediaries to reach the end-user borrowers, consideration is made in looking at the economy at large when making decisions on income, expenses etc.</p>	NE1
<p>Macroeconomic data and influences play a large role in the performance of incremental housing finance and therefore this informs the decisions taken about incremental housing finance. If data demonstrates that the end users are more likely to default on repayments given the macroeconomic influences, then investment in the incremental housing space will be curtailed given weak cashflows and an inability to meet financial obligations.</p>	NE2
<p>Same as above. The amount of loan facilities allocated for incremental housing finance product is largely influenced, among others, by the outlook of macroeconomic environment.</p>	NE3
<p>Political, economic, social, etc. have a direct impact on incremental housing. Poor economic outlook impacts on investment decisions.</p>	NE4

As investors consider the South African market and other developing markets, it is imperative to explain the role of the macroeconomy in making prudent investment decisions. According to NE1 in Table 4.10:

Macroeconomic data plays a critical role in our decision making, since we use intermediaries to reach the end-user borrowers, consideration is made in looking at the economy at large when making decisions on income, expenses etc.

The NHFC executives are guided by macroeconomic data to either push aggressive investment or cut back on investments. Accordingly, this helps to mitigate risk and prevent high rates of default.

According to NE2 in Table 4.10:

If data demonstrates that the end users are more likely to default on repayments given the macroeconomic influences, then investment in the incremental housing space will be curtailed given weak cashflows and an inability to meet financial obligations.

4.5.1 Linear Regression Model of the Impacts of Macroeconomic Indicators on Incremental Housing Finance

In this section, the macroeconomic data collected is regressed against incremental housing finance performance to evaluate the impact of these variables. This element becomes a significant improvement to the incremental finance framework this study proposes.

TABLE 4.11: RELIABILITY DATA ANALYSIS

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.506	.730	7

Table **4.11** shows the result of the Cronbach's Alpha test which was conducted to test the reliability of the data collection and instrument. A standardized value of 0.730 proves that the selected variables and instruments are reliable.

TABLE 4.12: INTERCORRELATION DATA ANALYSIS

Inter-Item Correlation Matrix							
	Number of Incremental Loans	Value of loans approved R million	Value of RHLFL Loans millions	Number of RHLFL Loans	Total Incremental Funding Millions KFW Grant KFWDBSA Loan D	Nonperforming Loans R millions	Total Number of housing opportunities
Number of Incremental Loans	1.00	-.56	.89	.24	.46	.510	.846
Value of loans approved R million	-.56	1.00	-.65	-.46	-.51	-.130	-.607
Value of RHLFL Loans millions	.89	-.65	1.00	.59	.71	.511	.826
Number of RHLFL Loans	.24	-.46	.59	1.00	.81	.339	.495
Total Incremental Funding Millions KFW Grant KFWDBSA Loan D	.46	-.51	.71	.81	1.00	.533	.621
Non-performing Loans R millions	.51	-.13	.51	.34	.53	1.000	.395

Total Number of housing opportunities	.85	-.61	.83	.50	.62	.395	1.000
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The inter-item correlation matrix in Table 4.12 suggests that there is high correlation between variables besides the macroeconomic variables. This suggests that selecting a representative dependent variable for the regression analysis achieves the test of impact with linear regression. The high correlation with the Total Incremental Funding variable makes it an ideal representative dependent variable to regress with the chosen macroeconomic variables, unemployment, inflation, and lending rate.

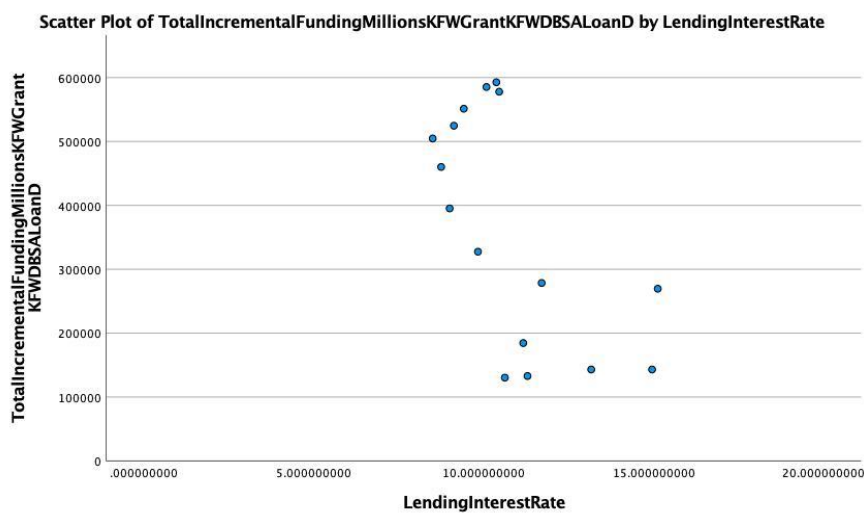


FIGURE 4.9: TEST OF NORMALITY FOR LENDING INTEREST RATE

Using the scatterplot approach to test for normality, unemployment, inflation, and lending rate demonstrate normality when plotted against the dependent variable in Figure 4.9. This demonstrates a normal distribution for the lending interest rate variable which fulfils a prerequisite for the regression analysis.

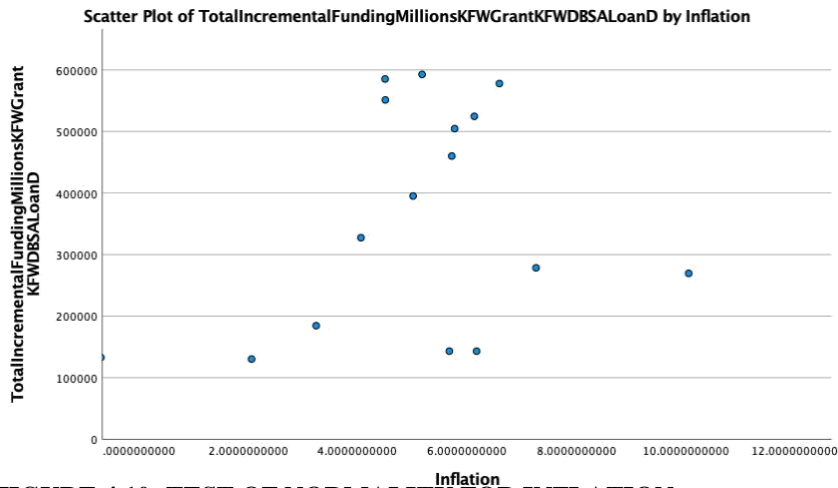


FIGURE 4.10: TEST OF NORMALITY FOR INFLATION

The study used the scatterplot approach to test the inflation variable for normality in Figure 4.10. This demonstrates a normal distribution for the inflation variable which fulfils a prerequisite for the regression analysis.

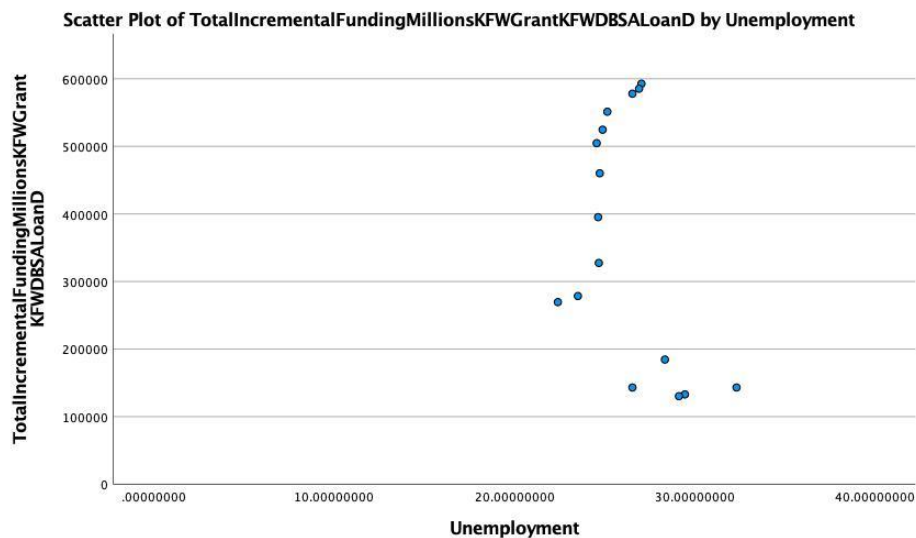


FIGURE 4.11: TEST OF NORMALITY FOR UNEMPLOYMENT

The study used the scatterplot approach to test the unemployment variable for normality in Figure 4.11. This demonstrates a normal distribution for the unemployment variable which fulfils a prerequisite for the regression analysis.

In this section, 3 macroeconomic indicators are regressed against the selected incremental

housing finance variable. This regression model demonstrates the impact of individual variables on the growth of investment funding as an indicator of performance in the incremental housing finance market. To achieve this, the Model test, Durbin-Watson, Anova, and regression test were completed as seen in Table 4.6.5-8.

TABLE 4.13: MODEL TEST FOR THE LINEAR REGRESSION OF THE IMPACT OF MACROECONOMIC VARIABLES ON INCREMENTAL HOUSING INVESTMENTS

Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.829 ^a	.687	.609	113455.638	.687	8.776	3	12

From Table 4.13, the multiple correlation coefficient (R) is 0.829 which suggests that the independent macroeconomic variables selected explain 82.9% of the dependent variable. This implies a strong positive relationship between independent macroeconomic indicators and Total Incremental Funding. Also, interesting to note is the fact that the Adjusted Coefficient of Determination (R^2) which demonstrates how much variation in the dependent variable is explained by all the independent variable was given as 0.609. This explains that 60.9% of the variation in the dependent variable is accounted for by all the independent variables. Therefore, the independent variables made a highly significant contribution to explaining variations in the dependent variable

TABLE 4.14: DURBIN-WATSON TEST OF SIGNIFICANCE FOR THE LINEAR REGRESSION OF THE IMPACT OF MACROECONOMIC VARIABLES ON INCREMENTAL HOUSING INVESTMENTS

Model Summary		
Model	Change Statistics	Durbin-Watson
	Sig. F Change	
1	.002	.939

As seen in Table 4.14, the Durbin Watson test of positive autocorrelation has a value of 0.939. This suggests high predictability achieved in this model, which means that the model positively influences itself. The growth of the dependent variable today will likely cause more growth in the future. The significance test shows a model significance at 0.002 which is significantly below the statistical probability of 0.05. This means that the model passes the test of significance and the independent variables cause a significant impact on the dependent variable.

TABLE 4.15: ANOVA TEST OF MODEL SIGNIFICANCE FOR THE LINEAR REGRESSION OF THE IMPACT OF MACROECONOMIC VARIABLES ON INCREMENTAL HOUSING INVESTMENTS

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	338896261013.640	3	112965420337.880	8.776	.002 ^b
	Residual	154466182211.360	12	12872181850.947		
	Total	493362443225.000	15			

Furthermore, the ANOVA table (Table 4.15) shows a F-value of 8.776 and a significance value of 0.002 (i.e., $p = .000$), which is below the statistical probability of 0.05, therefore, there is a statistically significant difference on how incremental housing finance is funded based on macroeconomic changes. This implies that macroeconomic changes within the South African economy influence the total funding and investment in incremental housing finance.

TABLE 4.16: LINEAR REGRESSION OF THE IMPACT OF MACROECONOMIC VARIABLES ON INCREMENTAL HOUSING INVESTMENTS

Coefficients								
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Correlations	
		B	Std. Error	Beta			Zero-order	Partial
1	(Constant)	407886.075	461789.152		.883	.394		
	Inflation	59592.183	20246.303	.772	2.943	.012	.284	.648
	Unemployment	22179.834	18667.203	.310	1.188	.258	-.436	.324
	Lending Interest Rate	-85852.448	19689.260	-.962	-4.360	<.001	-.626	-.783

Lastly, table 4.16 contains the figures for the partial correlation coefficients. The correlation coefficients indicate the direction and impact of each independent variable in the regression model determining how the dependent variable changes relative to each. Variables with positive coefficients which are inflation and unemployment indicate that rise in these macroeconomic indicators will cause a similar rise in the dependent variable which is incremental housing funding. The lending rate has a negative standardized coefficient which means that this variable causes an opposite effect in the dependent variable. A rise in lending rate will consequently cause a fall in investment in incremental housing funding. When

standardised, the partial correlation coefficients for the regression contributors were 0.772 (inflation), 0.310 (unemployment) and -0.962 (lending rate). This implies that in the model derived, lending rate has the highest significant impact on the dependent variable followed by a positive contribution by inflation. The lowest significant contributor is unemployment. Therefore, all independent macroeconomic variables significantly affect the growth of incremental housing finance as seen in equation 4.6.2.

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_pX_p \quad \text{Eq. (4.6.1)}$$

$$Y = B_0 + 0.772 X_1 + 0.310 X_2 + -0.962 X_3 \quad \text{Eq. (4.6.2)}$$

where Y = Total Incremental Funding

X₁ = Inflation

X₂ = Unemployment

X₃ = Lending interest rate.

4.6. Framework for the South African Incremental Housing Finance

In this section, the study develops a distinct framework for incremental financing based on the operational model of the NHFC. This section of the report combines qualitative and quantitative insights to illustrate the financing framework and a macroeconomic element that provides risk mitigation for private investors. Interviews with 2 top executives of the NHFC and a retail intermediary have been summarized in Table 4.17. The relationship between the NHFC and retail intermediaries is critical to the incremental housing finance framework that is proposed for the South African housing market. The existing framework that is used by the NHFC is summarised in Table 4.17.

TABLE 4.17: SUMMARY OF NHFC INCREMENTAL HOUSING FINANCE FRAMEWORK

No.	Attribute
1.	The NHFC is an Apex body that offers finance and oversight.
2.	Activates new markets by providing start-up capital or pilot funding.
3.	The NHFC is a state-owned entity enabling private sector retail financiers.
4.	Retail intermediaries work directly with building merchants to disburse funds.
5.	Sometimes retail intermediaries have agreements with retail outlets like PEP store to ensure easy access to funds.
6.	NHFC owns equity in some of the retail intermediaries.
7.	In other cases late loans are converted into equity contribution in the retail intermediary structures.
8.	Lending terms could include stipulations on the interest rates that loans must bear which is reflective of interest rate discounts provided by the NHFC.
9.	Retail intermediaries collect repayments from end-users which is remitted to the NHFC. The most consistent repayments are from recipients of the South African Pension Scheme.
10.	Incremental finance becomes more attractive to the private sector investor when macroeconomic factors, as discussed in section 4.5.1 earlier, offers insight into the repayment behaviour of end users. This will also subsequently increase investment and funding for this new model of financing affordable housing.

Table 4.17 summarizes key pointers to the relationship between NHFC, the South African government, retail intermediaries, and end-users which is then used to design the framework for incremental housing finance in Figure 4.12. This framework demonstrates how the private and public sector are critical stakeholders in reducing the housing stock deficit. This study's goal was to identify how stakeholders can contribute to providing affordable housing through incremental housing finance. Figure 4.12 also illustrates this in a visual framework.

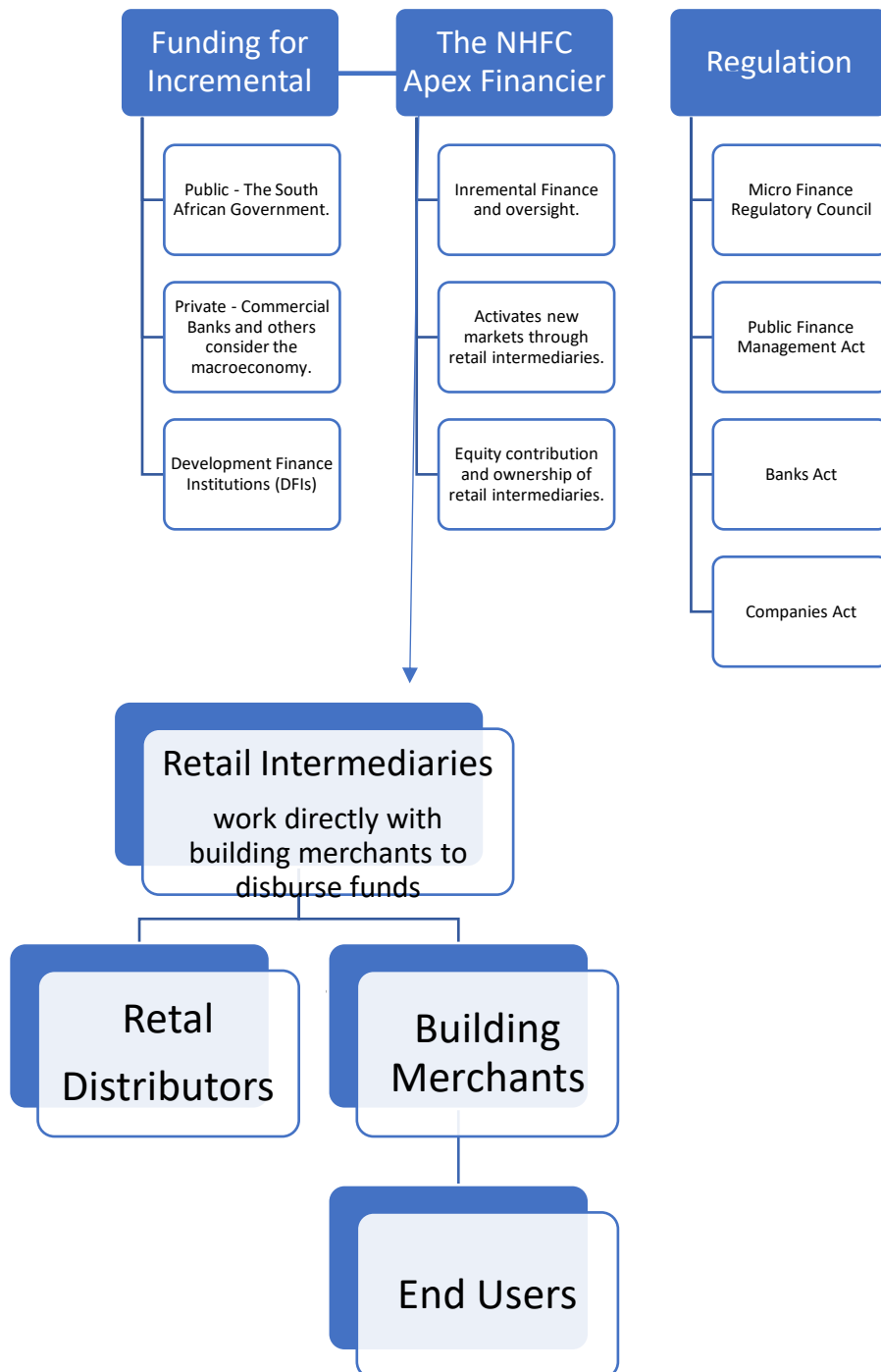


FIGURE 4.12: MODEL FRAMEWORK FOR INCREMENTAL HOUSING FINANCE

The introduction of retail distributors by some intermediaries as seen in Figure 4.12 marks a significant improvement to the disbursement efficiency for incremental housing finance. However, it becomes critical to evaluate the repayment performance and how much success this framework has seen with the target market.

The framework in Figure 4.12 also serves to ensure a seamless financing and repayment process. There is substantial optimism on the part of executives about the repayment behaviour of incremental housing finance recipients. Interestingly, the executives suggest that the higher the loan amounts, the more difficulties experienced with repayment. This suggests that low-income borrowers are great with repayment which seems different from what would be expected of this demographic. Furthermore, with the introduction of macroeconomic data, private sector investors can rely on the incremental financier to mitigate risk of default and improve returns in terms of repayments.

A consensus across interviews was that repayments were significantly better with pensioners. According to NE1:

The best repayment rates are from the people earning pension grants from the government. Because what we find is that if they borrow, they can buy cement. When they've paid that back, they can borrow to buy bricks. Eventually, they are able to start building. So, they tend to try and pay back as quickly as possible so they can actually start the building process".

Also, it is highly noticeable that the NHFC and the retail intermediaries report a low default rate with repayments as high as 95%. The incremental finance borrowers are considered to be good credit users as the model encourages them to make repayments in order to access further funding to develop their homes.

4.7. Chapter Summary

In this chapter, all results of the study have been reported to demonstrate the outcomes of the mixed study. The reports of the qualitative study were the first outline and this was followed by reports of the survey administered to NHFC executives. After the survey, the report summarizes the findings from further qualitative interviews with selected executives of the NHFC. Finally, the quantitative data extracted from NHFC reports were reported to demonstrate further the macroeconomy's relationship with incremental housing finance. The next chapter is the conclusive one which examines the results and provide recommendations from the outcome of these results.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

This final chapter provides an overall summary of this study and highlights the major achievements, gaps addressed and opportunities for further research. This introductory section is followed by section 5.1. which dwells on the realization of the research objectives, this is followed by section 5.2. which provides core conclusions from this research. Section 5.3. focuses on describing the study's contribution to theory and scientific research. Section 5.4. explores policy and practical implications of the research outcomes. Section 5.5. focuses on the research limitations. The final section 5.6. recommends possible areas of further research.

5.1. Realization of the Research Objectives

This study of a new approach to housing finance was necessitated by the challenges assailing formal or mortgage financing in the majority of African and developing economies. Researchers like Mehlomakulu, and Marais, (1999); Pugh, 2001; Groves, 2004; Marais, Ntema, and Venter, (2008), have led the interest in designing innovative housing finance solutions that harness public and private capacity to finance housing. More importantly, the importance of understudying existing models that have relied on access to private financing have become critical to developing informal/incremental housing as an alternative to formal/mortgage financing. This need to strengthen financing models that are inclusive and scale them for more groups of African households made this study important and led to the pursuit of the research objectives stated at the beginning of the study.

5.1.1 Determine if the formal housing finance challenges are influential in the development of incremental housing finance in South Africa

Thorough literature and qualitative analysis were explored to understand the evolution of incremental housing finance as a viable alternative by the NHFC in South Africa. Accordingly, the NHFC reports examined between 2003-2020 prove that incremental housing finance has served a population that typically wouldn't qualify for formal mortgage financing. This objective was also achieved through expert interviews with the NHFC executives. The study found that incremental housing finance development in South Africa has been directly influenced by the challenges of the formal housing finance in serving low- to middle-income families. The findings demonstrate that incremental housing finance directly addresses a housing affordability gap for low to middle-income earners in South Africa. This agrees with findings by researchers like Ferguson and Smets, (2010), Amoako; and Frimpong Boamah, (2017) who also recommend that informal housing needs can be met through incremental financing solutions built to scale.

5.1.2 Identify performance risks for existing incremental housing finance

This objective was achieved by examining the challenges faced by formal housing finance through an in-depth literature search and qualitative data analysis. In examining the NHFC reports, the study identified the similarities and differences in challenges faced in implementing incremental housing finance as opposed to the formal housing finance solution. The results demonstrated significantly that incremental housing finance doesn't have the same challenges as the conventional mortgage finance model and is rather resilient in improving access to financing for categories of homeowners who have typically not been able to afford improved housing conditions. Top on the list of identified performance challenges/risks include (1) Lack of institutional capacity, (2) Macroeconomic uncertainties and rising interest, (3) Formal finance competition, (4) Lack of

recognition of incremental property value, (5) Variable cost of construction. Therefore, the study achieved the objective of identifying which factors inhibit the performance of incremental housing finance.

5.1.3 Determine the role played by macroeconomic factors in innovation and adoption of self-help or incremental affordable housing finance across South Africa

This objective was achieved through interviews and quantitative data analysis which involved a regression model to determine the relationship between incremental housing funding and macroeconomic indicators. The model derived showed that the partial correlation coefficients for the regression contributors were 0.772 (inflation), 0.310 (unemployment) and -0.962 (lending rate). Consequently, lending rate demonstrated the highest significant impact on the dependent variable followed by a positive contribution by inflation. The lowest significant contributor is unemployment. However, interviews with NHFC executives affirm the significant role of unemployment rate and other macroeconomic indicators in mitigating risk of default and achieving a robust financing solution for incremental homeowners. The study further determines that macroeconomic indicators help with risk mitigation practices within the NHFC. This objective was achieved and it has contributed to the proposed incremental housing finance framework earlier discussed in the results in Chapter 4.

5.1.4 Evaluate the impact of individual macroeconomic indicators on the growth of incremental housing finance options for the low and middle-income section of South Africa

The NHFC executives interviewed were able to provide detailed guidance on how individual macroeconomic indicators impact decision-making. The results of the qualitative data extracted from interviews suggested that unemployment is often the most indicative of how aggressively incremental housing finance will be financed or curtailed. The regression model

derived from the analysis achieves this objective as it agrees with the qualitative reports from interviewing NHFC executives. This study objective was achieved to the limits of data available concerning the growth of NHFC's incremental housing investments.

5.1.5 Develop a hybrid model for financing incremental/self-help housing in South Africa

In order to model the incremental housing finance framework employed by the NHFC, the study interviewed top management executives and this combined with the regression analysis of macroeconomic indicators. The framework proposed illustrates the 3 top components of the financing structure that should include (1) Institutional financing (2) Funding from both private and public entities (3) Regulation. The capacity of the incremental housing framework to mitigate risk and maximize returns for investors is embedded in the disbursement structure, and the extent to which macroeconomic variables influence decision-making. The proposed framework is one that ensures that funding is adequately disbursed to end users through retail intermediaries and building merchants. This study objective was achieved in light of the fact that this framework has not been delineated prior to this study.

5.2. Research Conclusions

Considering the outcomes of the research, it is ideal to make the following conclusions:

1. Incremental housing finance is an ideal alternative for improving inclusive and affordable housing finance solutions in South Africa.
2. The incremental housing finance model is adaptive to changing macroeconomic conditions and deploying this model is capable of mitigating default risk.
3. Low or middle income earners are not to be considered as risky borrowers when accessing incremental housing finance as these borrowers are found to be generally great with repayment.

4. The ability to anticipate the macroeconomy gives incremental housing financiers an ability to mitigate risk of default. The macroeconomy, therefore, has a significant impact on the performance of incremental housing finance and access to this kind of financing.

5. The challenges facing incremental housing finance are not as pervasive as those facing formal mortgage financing. This model is more suited to the nature of housing needs in developing economies and should be explored further.

5.3. Research Contribution to Theory and Science

Considering the critical nature of housing and finance research, there have been several researches focused on formal or mortgage financing across Africa and the world. However, this study brings an in-depth mixed method approach to understudying a scarcely considered alternative to formal financing. This approach allowed the researcher to consider varying dimensions to the housing finance problem. Beyond the often definitive outcomes of quantitative data, additional qualitative research broadens the scope of data collected and analysed. This study narrows in on observing the evolution of a phenomenon within the housing finance space which would provide other policy designers insight into how housing finance is evolving in developing economies.

By focusing critically on the NHFC, an apex financier in one of Africa's top economies, this study demonstrates the capacity of the state and private entities to create inclusive financing instruments collaboratively. This also demonstrates that in looking at the behaviour of incremental housing target markets, many of the theories that suggest this to be a risky market have not fully explored the reality of low-income borrowers.

Self-help, or incremental housing provides an interesting outlook to asset ownership and the ability of low-income households to contribute to improving their own living conditions. Also, the ability to measure the impact of the macroeconomy on the growth of the incremental housing finance market suggests that this market is more predictable than has been previously known.

This study further extends the debate between neoliberalist ideals and state-controlled housing. The findings suggest that there is a nexus between the two almost opposite approaches to housing provision. The sustainability of the framework it proposes hinges on the idea that a well-functioning housing market must not rule out government intervention and vice versa.

5.4. Policy and Practical Recommendations

Financial inclusion and the goals of achieving housing finance affordability across the African continent will continue to motivate studies like this. In order to maximize the development of policy and financing instruments for housing in the low-income target groups, this study recommends as follows:

1. The role of government as housing provider should transform to that of an enabler through establishing institutional entities like the NHFC. Incremental housing finance should then be implemented by such apex financing bodies funded or subsidized by the state for on-lending to retail intermediaries.
2. Operation of incremental housing finance niche lenders should be guided by regulations established by the government to mitigate risk and standardise governance. Retail intermediaries must be guided by prudent financing guidelines that ensure that risk of default is minimal.
3. Incremental financing should be disbursed through reliable building merchants to ensure that funding is used for the purpose of homeownership and quality homes are built.

4. Macroeconomic data should be collected regularly and employed in anticipating the performance of incremental housing finance funds. This will ensure that public and private stakeholders are making informed decisions about financing the low-income target market and how to minimise default.
5. Risk mitigation practices must consider the macroeconomy as a significant risk consideration when disbursing incremental housing finance.
6. In less developed countries, incremental financing must be prioritised as an alternative financing approach that is suited to self-help housing needs.
7. In order for the private sector to be harnessed for incremental housing finance public sector actors must work to strengthen the framework that guarantees developmental financing will be provided for incremental housing.

5.5. Research Limitations

Despite the value of the research conducted, it was not without its limitations. Acquiring reports and especially quantitative data regarding incremental housing within NHFC proved difficult due to a lack of uniform reporting methods across years. The lack of consistent data reporting methods made it difficult to collect data across the years, and this made analysis limited. In order to overcome this limitation, data from differing sources were utilized to achieve a representative sample. The dichotomy between the Rural Housing Loan Fund (RHLF) and the NHFC before the merger also made it difficult to collect data from both entities. Therefore, the data utilised in quantitative analysis are considered as close estimates more than an exact representation of the state of incremental housing financing in South Africa. Noticeably, only 5 executives out of 9 were responsive to the survey instruments that were administered. Despite a lengthy engagement period where executives were contacted individually and as a group, it was

impossible to get insights from some of them. This also limited the outcome of the survey to the few executives who responded. However, the data collected gave considerable insight to the research objectives as many of the themes reached saturation.

While following up to acquire more data regarding incremental housing financing performance, the executives were unresponsive with some data, and this made it imperative to identify more complete and reliable data sets which could be used in the quantitative analysis.

5.6. Areas of Further Research

Incremental housing finance is still in quite a developmental phase with little adoption or use of cases across the African continent. Even though self-help or incremental housing seems to be the most popular approach to homeownership, there is little knowledge on the applicability of these methods to financing of housing. Beyond the achievement of this study, more research is needed to determine how well this model will perform in other less-developed African countries. Pilot studies and cases can bring more practical outcomes for deploying incremental housing finance in more countries across Africa.

Also, in the pursuit of prudent financial practices, risk mitigation and repayment guarantee schemes are yet to be fully explored. This provides an opportunity to discover how government guarantee schemes and pension programs can improve incremental housing finance frameworks. More research can be done to understand the relationship between government guarantee schemes and the ability of private sector financiers to invest in incremental housing finance.

Ultimately, incremental housing finance is one in many models of financing that brings public and private sector stakeholders together in solving the housing affordability challenge. The impact of

the public sector in activating new markets and piloting innovation presents a major opportunity for further research. The enabling role of government in housing affordability through developmental finance is a critical area of research that must still be explored. In the journey towards achieving housing affordability for all, incremental housing research is going to benefit from regional, and country specific research across the African continent.

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APPENDIX 1: ETHICAL CLEARANCE



Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en
Inligtingtegnologie / Lefapha la Boetšenere,
Tikologo ya Kago le Theknolotši ya Tshedimošo

15 June 2022

Reference number: EBIT/168/2021

Mr JD Oladeji
Department: Construction Economics
University of Pretoria
Pretoria
0083

Dear Mr JD Oladeji,

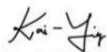
FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Approval is granted for the application with reference number that appears above.

1. This means that the research project entitled "THE IMPACT OF MACROECONOMIC INDICATORS ON HOUSING AFFORDABILITY IN SOUTH AFRICA " has been approved as submitted. It is important to note what approval implies. This is expanded on in the points that follow.
2. This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Research Ethics Committee.
3. If action is taken beyond the approved application, approval is withdrawn automatically.
4. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.
5. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.



Prof K.-Y. Chan

Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY



**Faculty of Engineering,
Built Environment and
Information Technology**

Fakulteit Ingenieurswese, Bou-omgewing en
Inligtingtegnologie / Lefapha la Boetsenere,
Tikologo ya Kago le Theknološi ya Tshedimošo

29 June 2022

Reference number: EBIT/168/2021 Line 1

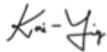
Mr JD Oladeji
Department: Construction Economics
University of Pretoria
Pretoria
0083

Dear Mr JD Oladeji,

This is to notify you that the amendments to your application entitled "THE IMPACT OF MACROECONOMIC INDICATORS ON HOUSING AFFORDABILITY IN SOUTH AFRICA ", have been approved by the EBIT Ethics Committee.

Interviewee to sign an informed consent form prior to interview.

Kind regards



Prof K.-Y. Chan

Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

APPENDIX 2: NHFC APPROVAL TO CONDUCT RESEARCH

National Housing Finance Corporation SOC Ltd.

Financier | Innovator | Facilitator



, subject to the company's viewing of and prior a

company's

(such as company's archived

Bruce Gordon
2022.03.07
13:32:54 +02'00'

National Housing Finance Corporation SOC Ltd.

Old Trafford 3 • Isle of Houghton • 11 Boundary Road • Houghton 2198 • P O Box 31376 • Braamfontein • 2017 • Tel.: +27 11 644 9800 • Fax: +27 11 484 6406 • www.nhfc.co.za

DIRECTORS: Non-Executive: • P. Ramarumo [Acting Chairperson] • S. Tati • T. Chiliza • K. Shubane • A. Harris • P Mthethwa

*Company Secretary: A.C. Higgs

NHFC Reg. No.: 1996/00577/30

National Credit Regulator Reg. no.: NCRCP763

APPENDIX 3: INFORMED CONSENT FORMS

IMPACT OF MACROECONOMIC INDICATORS ON INCREMENTAL HOUSING FINANCE IN SOUTH AFRICA

Consent to take part in research

- I J. Jabulani Fakazi voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves an oral interview following up on the gaps in data already obtained through questionnaire surveys.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in thesis and journal articles published by the principal investigator/researcher].

- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original recordings will be retained by the investigators from the Department of Construction Economics, University of Pretoria throughout the period of research publications and thesis reporting.
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for the period of research publications and thesis reporting.
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

If you have any concerns, please contact me on the details provided below.

Researcher name: Oladeji Jonathan Damilola; Email: u17046701@tuks.co.za; Phone: +27812093165

Signature of research participant



Jabulani Fakazi
2022.07.11
17:42:43
+02'00'

Signature of participant

Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study



29/06/2022

Signature of researcher

Date

**IMPACT OF MACROECONOMIC INDICATORS ON INCREMENTAL HOUSING
FINANCE IN SOUTH AFRICA**

Consent to take part in research

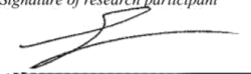
- I Bruce Gordon voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves an oral interview following up on the gaps in data already obtained through questionnaire surveys.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in thesis and journal articles published by the principal investigator/researcher].

- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original recordings will be retained by the investigators from the Department of Construction Economics, University of Pretoria throughout the period of research publications and thesis reporting.
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for the period of research publications and thesis reporting.
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If you have any concerns, please contact me on the details provided below.

Researcher name: Oladeji Jonathan Damilola; Email: u17046701@tuks.co.za; Phone: +27812093165

Signature of research participant



30 June 2022

Signature of participant

Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study



29/06/2022

Signature of researcher

Date

APPENDIX 4: SURVEY QUESTIONNAIRE FOR NHFC EXECUTIVES

03/10/2022, 14:15

Incremental Housing Finance & The Macroeconomy

Incremental Housing Finance & The Macroeconomy

My name is Oladeji Jonathan D, a Doctoral Candidate of the Department of Construction Economics, University of Pretoria. In fulfilment of my research objectives, I seek your voluntary participation and response to a 10-minutes questionnaire. The Thesis is titled Impact of Macroeconomic Indicators on Incremental Housing Finance in South Africa. This interview seeks to unravel how the National Housing Finance Corporation (NHFC) has developed its incremental housing finance framework to serve the low-income groups while achieving profitability. All research data and results will be used for academic purposes only and in compliance with the University of Pretoria code of ethics found here:https://www.up.ac.za/media/shared/7/ZP_Files/EBIT-EthicsFiles/uppr039051.zp86642.pdf. This electronic interview approach has been adopted to protect both researcher and participants against the COVID-19 pandemic. If you have any concerns, please contact me on the details provided below. Researcher name: Oladeji Jonathan Damilola; Email: u17046701@tuks.co.za; Phone: +27812093165

By selecting the "Yes" option I hereby voluntarily grant my permission for participation in this survey. The nature and the objective of this research have been stated to me and I understand it. I understand my right to choose whether to participate in the research project and that the information provided will be handled confidentially. I am aware that the results of the survey may be used for academic publication

- Yes
 No

Kindly confirm that you are in executive leadership position at the National Housing Finance Corporation (NHFC)

- True
 False



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<https://form.jotform.com/221214822991555>

1/6

Low-Income levels of informal homeowners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volatile macroeconomic conditions caused by political and socio-economic crises.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unavailability of credit history data for primary lenders to assess repayment risk of beneficiaries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor enforcement of regulation and collateral security litigation in cases of default	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial illiteracy influencing the attitude of beneficiaries toward repayment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of tenure security resulting from inadequate and costly deeds registry process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please feel free to discuss more

Type here...

Kindly rate from the following options the impact of performance risk factors facing the growth of incremental (informal) housing finance in South Africa Rate responses on a scale of 1-7 (where 1 represents the lowest impact and 7 is the highest impact)

	1	2	3	4	5	6	7
Poor governance and management by retail intermediaries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poverty and affordability challenges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial capacity of retail intermediaries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beneficiaries misuse loan funds for other purposes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The unsecured nature of incremental loans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A hike in interest rates affects housing prices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

03/10/2022, 14:15

Incremental Housing Finance & The Macroeconomy

unemployment	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Slow take-up by clients	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Kindly discuss this freely

Type here...

Rate your level of agreement with the statement, Incremental Housing Finance increases the level of housing finance affordability for low and middle-income groups in South Africa

1	2	3	4	5	6	7
Strongly disagree				Strongly agree		

Kindly discuss this freely

Type here...

How significant are the following macroeconomic indicators for making decisions about providing incremental housing finance solutions in South Africa? Rate responses on a scale of 1-7 (where 1 represents the lowest significance and 7 is the highest significance)

	1	2	3	4	5	6	7
GNI per capita (income)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unemployment rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


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03/10/2022, 14:15

Incremental Housing Finance & The Macroeconomy

Gross Domestic Product (GDP)							
Life expectancy at birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inflation rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kindly discuss this freely

Type here...

What level of risk do the macroeconomic indicators constitute to incremental housing financing in South Africa?

- Very minimal risk
- Minimal risk
- Risk-free
- High risk
- Very high risk

Kindly discuss this freely

Type here...

Please describe the role that macroeconomic indicators play in NHFC's decisions about incremental housing finance in South Africa

03/10/2022, 14:15

Incremental Housing Finance & The Macroeconomy

Type here...

Please describe the role that Macroeconomic data and influences play in investment decisions for incremental finance in South Africa

Type here...

Submit Survey



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Create your own Jotform

6/6

APPENDIX 5: ORAL INTERVIEW QUESTIONS

Thanks for your insightful responses to our research questions and for the referral to speak to other executive members including the Mortgage retail intermediary. Here's a recap of the core questions asked:

1. Please provide us with the estimated annual figures of incremental housing finance beneficiaries from 2015-2020.
2. Kindly explain the role of the retail intermediaries in the incremental housing finance value-chain.
3. What's the annual disbursement for incremental housing finance between 2015-2020?
4. Can you provide an estimated annual figure of cumulative incremental housing finance repayments between 2015-2020?
5. Please provide the annual repayment figures for other formal financing options that the NHFC provided between 2015-2020.
6. Is the rate of repayment for incremental housing finance more than other formal financing options? Kindly state the reason(s) for your answer.
7. According to the NHFC reports there was a sporadic growth after a major fall/break in 2015. Is there an explanation for the higher incremental housing loans provided between 2015-2020?

We look forward to receiving the recording of the session and truly appreciate your time. During the course of the research reporting, I will be in touch again to share the work done with you and seek your input and guidance. Thank you.