HOUSING FINANCE AND INVESTMENT IN SUB-SAHARAN AFRICA:

A CASE STUDY OF MALAWI

A DISSERTATION

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STATEMENT OF DECLARATION

The work contained in this dissertation proposal was completed by JOEL CHIYAYO MZYECE at the University of Cape Town in 2022. It is original work except where due reference is made and neither has been nor will be submitted for the award of any other University.

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ABSTRACT

For many African families, owning a modest home remains a pipe dream. Efforts to address the continent's housing problem are hampered by high costs of urban land and insufficient tenure security, rising building costs, the prevalence of slums and above all a shortage of affordable housing finance. Due to market failure and resource constraints prevalent in the housing sector of Sub-Saharan African (SSA) countries, this study analysed the housing challenges in SSA using data from Malawi, which tends to be dominant with these common factors. With other previous studies which either employ descriptive or qualitative methods, this study additionally contributes by empirically estimating the variables in housing and housing finance using mixed methods analysis. The study's overarching goal was to investigate the impact of financing on housing in SSA using Malawi as a case study. To achieve this objective, the study sought to find answers to the quantitative and qualitative impact of housing finance and other macro and micro variables on housing availability and affordability. Mixed method was used and both the qualitative and quantitative methods were deductive as a priori analyses were done to test what the theoretical and empirical literature entail about housing. Secondary data from World Bank (WB) for the period 1980 to 2020 was used for the quantitative analysis and primary data captured from interviews with government officers and the private sector was used for the qualitative analysis. The findings of the quantitative analysis suggest that government housing finance, interest rate, inflation, GDP growth rate, exchange rate, urban population, and corruption all significantly affect housing. GDP growth rate, exchange rate, and urban population all affect housing positively whilst inflation, interest rate, and corruption affect housing negatively. Refugee population and political instability were found not significant. The findings of the qualitative analysis corroborate that of the quantitative findings. Analysis of interviews shows that interviewees agreed that corruption in government housing finance, interest rate, inflation, and exchange rate, significantly affect housing.

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DEDICATION

In loving memory of my late father Mr Sostain Mzyece (late) and my mother Mrs Maiden Fuya Mzyece (widow). I dedicate this humble work to them. From an early age they instilled in me the desire to learn and made sacrifices so I could have access to education. Without their support and guidance, I would have not been where I am today. May his souls rest in eternal peace.

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LIST OF ABBREVIATIONS

ADF	Augmented Dicky Fuller
AfDB	African Development Bank
APT	Arbitrage Pricing Model
CAPM	Capital Asset Pricing Model C
CLRM	Classical Linear Regression Model
DEFIC	Development Finance Centre
GDP	Gross Domestic Product
JB	Jarque Bera
LTV	Loan to Loan Value
NPL	Non-Performing Loan
OLS	Ordinary Least Squares
PP	Probability Plot
SSA	Sub-Saharan Africa
WB	World Bank
WDI	World Development Indicator
WGI	World Governance Indicator

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Supplying adequate, affordable housing on a large scale is critical for Sub-Saharan Africa's (SSA) long-term development, one major roadblock is the absence of readily available housing finance for end users (Jones & Stead, 2020). Lenders have historically viewed low-income individuals as high-risk (Kim, 2016). They are shut out of banking systems and are compelled to self-build using exorbitantly priced informal financing, with those who cannot afford it opting for slum settlements (Jones & Stead, 2020). On the other hand, most governments in SSA are being obliged to cut public housing funding because of persistent deficit spending (Bah, Faye, & Geh, 2018). Similar to the majority of SSA's developing nations, Malawi has a high rate of urbanization (estimated at 4.3% annually), making it difficult for the city's poor to get access to land and financing for housing (Manda & Mitlin, 2015). Given the similarities in housing and housing finance challenges between Malawi and other SSA countries, this study examines the issues using Malawi as a case study, providing real-world investigation and potential solutions in SSA.

Urban housing poses a considerable challenge in many counties in SSA and is indicated that by 2035, half of the African population will reside in urban areas with a possibility of being constrained by low employment outside informal sectors, spatial urban expansion without the benefits of densely populated areas, and urban poverty (African Union Commission [AUC], 2015). The Agenda 2063 which is the African Continent long term development plan has seven (7) Aspirations. The first which is centred around prosperity, growth, and sustainable development, has a target of having cities and other settlements, where people have access to affordable and decent housing, as well as all the basic necessities of life, such as water, sanitation, energy, public transportation, and information and communication technology

(ICT). The anticipated challenges require a continued sustainable development approach strengthening rural-urban linkages, considering population growth projections are estimated at 2.5 billion by 2050 and Africa is the world's fastest-growing population (AfDB, OECD, UNDP, 2016). For Sub-Saharan Africa (SSA) has the highest average annual population growth rate in the period of 2000 – 2015 estimated at 2.7% relative to South Asia at 1.53%, in contrast to the mismatch of per capita GDP at 2.29% and a higher indicator result for South Asia at 5% (Peterson, 2017). The indicators for economic growth seem to be laggards against the rapid population growth of SSA. This point is reinvigorated by the fact that drivers such as urbanization should be accompanied by the growth of affordable housing supply to respond to the consequent growing demand for housing and that the development of the housing finance system could be an excellent tool for this purpose (Nguena et al., 2021).

Though the world at large through the United Nations (UN) and other global bodies like the African Union (AU) are putting measures in place through policy design like the UN SDGs and AU Agenda 2063, urbanisation is quickly growing over the world, putting pressure on urban development, particularly in Africa and Asia. More than half of the world's population now lives in towns and cities, according to the UN (2017), and that number is expected to climb to 75 percent by 2050. Nearly 60 million more urban people will be added each year and around 200 million people in the region will be living in slums by 2020 (UN-Habitat, 2014). Only 15% of people in SSA are qualified to apply for formal financing , and only 5% of adults were able to acquire a home loan through a formal bank in 2014 (World Bank, 2015). The housing delivery value chain would be incomplete without the contribution of the housing finance industry. As a result, both the supply and demand of housing are reliant on the availability of financial resources. A household's decision to buy, build, or rent a home is heavily influenced by the availability and accessibility of housing finance. In the same way, developers need

money to build the massive housing projects required to address Africa's housing shortage.

Khare and Kader (2016) benchmarking from an Asian continent global perspective indicated that the lack of available and accessible housing finance has been identified by Asian Governments particularly Bangladesh. It is identified as being hurdles in improving housing conditions for the urban poor and continue to undermine economic growth and poverty reduction efforts. Phiri (2019) found out that macroeconomics tends to have an impact on the financial stability of the Malawian market which begins to support the study hypothesis that macroeconomic factors impact housing finance in Malawi. In addition, the study in Malawi by Zuka (2018) indicates that the political environment overtime significantly affects the economic landscape for housing finance which then tends to supports this study that governance plays a role towards housing development finance. This study focuses on Malawi. It is based on determining the effects of housing finance on housing availability, how macro and microeconomic factors affect housing availability, and how corruption affects housing.

Similarly, Pr (2016) shows that access to adequate housing is of critical importance for health and wellbeing of people against the back drop of conditions of exacerbated rapid urbanization and population growth and also indicates that housing finance is critical to the functioning of the housing market and that creating sustainable and effective housing finance requires the mobilization of longer-term sources of funding for both rental and owner-occupied housing, which is often missing in emerging markets. The report of the United Nations Human Settlements Programme (UN-Habitat) also points out that drastic measures need to be undertaken (Soave, 2022). Human settlements and sustainable urban development are the focus of the UN Human Settlements Programme (UN-Habitat). A result of the first United Nations Conference on Human Settlements and Sustainable Urban Development (Habitat I), which was held in 1976 in Vancouver, Canada, the UNHCR was established in 1978. All 17 Sustainable

Development Goals (SDGs) have an urban component, according to the report, including goals like affordable housing, public parks and open spaces, clean air and water, renewable energy, and climate change mitigation. According to the report, human settlements will continue to face challenges shaped by manmade causes like corruption, conflict and natural disasters such as a pandemic, and climate change emergencies in 2021 (UN Habitat, 2015).

Jones and Stead (2020) study shows that affordable housing is good for sustainable development. Bah et al. (2018) investigated government cutting down of finance for public housing. Nguena et al. (2021) to name but a few, put forward that developed financial system will help top solve the housing finance problem. These studies as noted, only considered government financial constraint to provide housing finance, the need for a developed financial system, and housing finance provision. Empirical studies on the effect of housing finance on housing, alongside macro and microeconomic factors including corruption is hardly addressed in the SAA context particularly Malawi. Manda et al. (2011) noted that in Malawi, the desire to seek political support affects housing affordability. Unlike previous studies, which focused more on big and resource rich countries, this study is on Malawi, a small resource constrained country in SSA. Also, unlike most studies which used either descriptive method, this study empirically estimates the effects of housing finance and other variables on housing.

1.2 PROBLEM STATEMENT

The 2030 Agenda for Sustainable Development includes housing as a key element, and housing is a key factor in achieving many of the Sustainable Development Goals, or SDGs. Affordable housing has a positive impact on one's health, education, and employment prospects (UN Habitat, 2022). However, few African nations are spared by the housing shortage (UN Habitat, 2022). In Nigeria, there are roughly 16 million people without adequate housing. About 3.7 million housing units are needed in South Africa. Ghana's is at 1.7 million units, and it would

cost more than $50 billion to close the gap. Kenya's annual housing demand is 250,000 units, but there are only perhaps 50,000 units available. Meanwhile, 4 out of 5 families in Malawi reside in subpar housing with little chance of ever being able to afford a decent home (UN Habitat, 2022). In 2021, UN Habitat estimated that for the next ten years, an estimated 21,000 new housing units will be required annually to meet the demand for housing, which is significantly higher than Malawi's annual housing supply. Scholars (Khare & Kader, 2016; Obioha, 2021) have put forth a variety of explanations, including insufficient housing financing, high mortgage interest rates, corruption in public housing funds, political unpredictability, urban migration, and many others. In contrast to earlier studies, which relied on either quantitative or qualitative methods, this study used a mixed method to empirically examine these issues, including housing finance, to get around the limitations of using either methodology.

1.3 RESEARCH QUESTIONS

To achieve the aim of the study, the study will find answers to the following research questions:

I. What is the effect of housing finance on housing?
II. To what extent do macroeconomic conditions affect housing?
III. To what extent do microeconomic conditions affect housing?
IV. Does corruption affect housing?

1.4 OBJECTIVES

The overall objective of the study is to examine the effect of financing on housing in Malawi. The specific objectives are to:

I. Establish the quantitative and qualitative effects of finance on housing availability.
II. Examine the quantitative and qualitative effects of macro and microeconomic actors on housing availability.

III. Estimate and discuss how corruption affects housing.

1.5 SCOPE OF THE STUDY

The study focuses on the role of housing finance in bridging the housing development deficit gap in SSA. Only domestic housing finance from both the public and private sectors was considered in the study. The study did not take into account international housing finance. This was due to the fact that international housing finance could not be determined and thus could not be adequately modelled. The emphasis on affordable housing stemmed from a housing shortage for people with limited access to finance. For the quantitative regression analysis, the study used World Bank (WB) data on housing, housing finance, and other macro and microeconomic variables from 1980 to 2020. Cross-section interviews with public and private stakeholders were used for qualitative analysis. This was for thematic qualitative analyses on their perceptions of the impact of housing finance, micro and macroeconomic factors, and housing corruption.

1.6 JUSTIFICATION OF THE STUDY

This study made a significant contribution by modelling the relationship between housing finance and housing using empirical econometric analysis. The model was expanded to include other financial variables such as economic growth, inflation, interest rate, and exchange rate as a contribution to the literature. Overall, the study adds to the existing academic literature on the effects of credit rationing by lenders and aversive investors in low-income countries.

Furthermore, the study's findings influence policy and practice in the housing and finance sectors. The direction and significance of macroeconomic finance variables such as economic growth, inflation, exchange rate, and interest rate provide a policy guide for the government's role in housing finance and development. Furthermore, the outcomes of micro variables such

as corruption and migration will inform private housing and housing finance practitioners in their daily operations. Overall, the empirical estimation and analyses provided in this study provide useful information for housing stakeholders in both the public and private sectors to help bridge the gap in housing finance, housing availability, and affordability.

1.7 ORGANISATION OF THE STUDY

The outline of chapters that are covered in the dissertation is as follows, chapter one with an introduction of the topic. It provides the research objectives, research question, and scope and justification of study which is thus so covered to this point. Chapter two covers the literature reviewed of the topic and tends to explore the body of knowledge with theoretical and empirical references. The methodologies are discussed in chapter three. It makes clear the research approach, design, variables, model and estimation technique applied. Chapter four introduces the research findings and discussions, in the exploration of the data collected of the country over the period under review. It contains assessment of hypothesis and objectives with results pertaining to the hypothesis defined in the previous chapters. Finally, chapter five brings out the summary and conclusions of the study and recommendations with proposed future research areas. The conclusion section discusses the findings in relation to the reviewed literature and proposes an alternative model of housing development in resource-constrained environments.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter sheds light on the theoretical framework that forms the basis for proposing the major hypotheses that are tested empirically in this thesis. The chapter is divided into two main sections with the first section focusing on the theories that explain the relationship between finance and housing, from both demand and supply perspectives and from both macro and micro concepts and variables. The second and last section deals with empirical literature on the relationship between finance and housing in some countries in Europe, America, SSA and Malawi in particular.

2.2 THEORETICAL LITERATURE

A review of the literature, including sources from the World Bank Open Knowledge Repository, reveals that several studies considered to be of high quality (Blackwell & Kohl, 2017; Ruonavaara, 2017) have relied on James Tobin's Q Theory of Housing Investment, first proposed in 1969.In housing investment, Tobin's Q Theory calculates the worth of a housing project based on how much it would cost to replace it. The market worth of housing is divided by the amount it would take to replace it to arrive at the Q ratio. Therefore, market value and replacement cost must be equal for there to be equilibrium. The Q housing investment Ratio attempts to express, on its most fundamental level, the connection that exists between the market valuation of housing and the intrinsic worth. It is a method for determining whether or not a particular housing project is overvalued or undervalued.

Tobin's Q ratio is still employed in practice, but studies after it have discovered that fundamentals, such as the rate of profit for a company or the average rate of profit for a country's economy, predict investment returns like housing considerably better than the Q ratio. Some researchers, including Henwood (1997) in his book Wall Street: How It Works and For Whom,

find that the Q ratio is ineffective for forecasting investment outcomes over a crucial time frame. The data included in Tobin's original (1977) research covered the years 1960 to 1974, during which Q appeared to adequately explain investment. The Q, however, is unable to foretell overvalued or undervalued markets or enterprises when compared to other time periods. The Q fell during the gloomy stock markets of the late 1970s, despite an increase in investment in assets, although throughout the first part of the 1970s they appeared to move in tandem.

Theory of Interest Rate and Housing, Population-Housing Hypotheses, The GDP-Growth Hypothesis, The Inflation – Housing Price Hypothesis, Corruption "Grease the Wheels" and "Sands the Wheels" Hypothesis, Information Asymmetry, Informality on Housing Finance Markets, Capital Asset Pricing Model (CAPM), and Arbitrage Pricing Theory are some of the slightly more robust models for the Malawian case. These hypotheses and ideas have been shown to be more effective at explaining the home finance system in SSA (Bah et al., 2018; Francke & Korevaar, 2021; Kampamba et al., 2018).

2.2.1 The Theory of Interest Rate and Housing

Kau and Keenan (1980) Theory of Interest Rate and Housing was developed using a microeconomic approach. It explains the relationship between real interest rates and housing. According to the theory, interest rates have the greatest impact on demand for housing (Cava, 2016). It is based on intertemporal preference maximization subject to a multi-period income constraint utilizes the partial equilibrium, comparative static model of demand behaviour. It works in discrete time and is based on real prices and interest rates. Consumer preferences are represented by a smooth utility function that is dependent on two types of goods: housing and nondurables. All markets are assumed to be flawless unless otherwise specified in this theory, which is based on a neoclassical framework. Instead of being based on improper present value concerns, it has become part of normal consumer theory with this method.

The Theory of Interest Rate and Housing further states that interest rates and rental housing prices are negatively related, that is increase in interest rate reduces rental housing prices because consumers will switch to savings to earn more income for mortgage payment on the demand side. It also noted that increase in interest rate lowers investment in housing. That is a negative relationship, if interest rate increases it reduces housing investment and a decrease in interest rate increases housing investment. This is based on supply-side microeconomic analysis which indicates that increase in interest rate encourages savings which discourages investment in real assets like housing. In effect, it is deducted that it supports the hypotheses that affect housing negatively. Given that interest rate is a monetary policy tool and a financing and investment factor, the relationship could be implied in terms of financing and investment in housing. Lower interest rate increases access to finance and hence more resources for investment in housing. Thus, access to finance increases resource availability for investment in housing.

An interest rate indicates how much it costs to borrow money or how much it pays to save money. If you are a borrower, the interest rate is the fee you pay for borrowing money, expressed as a percentage of the loan's total amount. For a particular loan size, the higher the percentage, the more you must repay. The savings rate tells you how much money will be paid into your account as a percentage of your savings if you are a saver. For a given deposit quantity, the greater the savings rate, the more will be paid into your account. A little shift in interest rates can have a significant impact. It is crucial to keep track of whether they are rising, falling, or staying the same (Boleat & Coles, 2017). Kleshcheva (2021) in the study “Determinants of Housing Affordability”, observed that interest rate affect housing availability and affordability. The observation is that lower interest rates often lead to an increase in mortgage refinancing activity. Homeowners may choose to refinance their existing mortgages to take advantage of

lower rates, which can reduce their monthly payments and potentially free up more disposable income for more home investments.

High interest rates in Malawi coincided with the periods of high corruption between 2016 and 2018 when it was over 25% (Tengatenga & Soyiyo, 2020). During the pandemic, government reduced the policy rate to 12% and has managed to increase to 14% in 2022. Interest rate is a macroeconomic factor. It is normally referred to as a cost of finance because high interest rate leads to high financing cost and low interest rate leads to low financing cost. How it quantitatively affects housing is a concern of this study as a macroeconomic factor.

2.2.2 Population-Housing Hypotheses

According to McDonald (2016), the population is a significant part of the demand situation for housing and it affects. Mulder (2006) pointed out that in the short term, an influx of new people or increase in population would cause a demand shock. This will drive up demand for all types of properties. It will push up prices making housing unaffordable and scarce. When additional properties are built, supply increases and eventually catches up with demand in the housing market (Gao & He, 2014).

Malawi is recognized as one of the nations that is urbanizing at one of the world's quickest rates, with an annual growth rate of over five percent and an urban population that is twenty percent (National Statistical Office, 2019). Malawi's urban population is projected to increase at a rate of 214,000 people each year between the years 2020 and 2025. This will significantly surpass the annual increase in the rural population, which is 193,000 (Soave, 2022). In Malawi, the emergence of slums has been attributed to an increase in population that has not been adequately accommodated by conventional housing in urban centres (Manda, 2007). This is due to the inability of the urban poor to acquire land for the purpose of building homes. In urban

regions with an extremely low housing inventory, housing is available for lease or purchase outright.

The coming together of a number of distinct savings organizations that are located in the slums of Malawi has resulted in the formation of a social movement in the slums of that country (Kamanga Frank, 2020). The Malawi Homeless People's Federation is the name of this group's organization. The majority of this category is comprised of residents of these regions of Malawi who are tenants of private dwellings. They consist of males and females equally. Because there is a shortage of housing in their area, they are forced into a precarious position; for this reason, they rent out their homes.

2.2.3 The GDP-Growth Hypotheses

The Keynesian Hypotheses (Keynes, 1936) claims that as a consequence of the expansion in GDP, it is now possible for individuals to spend their money on a greater variety of products and services. It is expected that house prices would increase as more buyers enter the market with the financial resources necessary to pay a higher price for a property. In contrast, a group of Taiwanese academics published their findings in a study in 2010 and found that a growing GDP led to inflation but did not cause a rise in property prices (Nguyen et al., 2017). However, real GDP, amongst other factors, is said to be the most common factor that influences housing prices (both affordability and availability), as stated by Lina (2017).

As a direct result of the expansion of the economy, there have been record-high levels of transactions in housing, extraordinary growth in the aggregate value of owner-occupied housing, and large increases in the amount of funds realized from the refinancing of mortgage debt. In addition, there have been record-high levels of owner-occupied housing as a result of the extraordinary growth in the aggregate value of owner-occupied housing (Haffner & Hulse,

2021). The combination of all of these variables has led to homeownership rates that are at all-time highs. As a result of this, a great number of economists believe that the thriving housing market and rising property values are a significant pillar that is supported by economic growth (Pashane Zuka, 2018). They have voiced concern that a slowdown in the economy could have an effect on the level of activity in the housing market as well as the value of homes.

After the brief but severe recession that COVID-19 caused, home prices in Malawi have been rising at record levels over the past few months, and they reached their highest point of growth (19.3 percent) in July 2021 (Thula et al., 2020). This can be attributed to the fact that the country is still recovering from the effects of the recession (Soave, 2022). Because of the scale of the disruption that was caused by Covid-19, homeowners and savers alike have every right to be concerned about what the future holds for the housing market. Although there has been both an increase and a reduction in the number of home transactions, the average price of a property has stayed high during the entire process. One way to characterize the situation of the housing market right now is as being one that is fairly unexpected.

2.2.4 The Inflation – Housing Price Hypothesis

In housing finance literature, one of the macroeconomic variables is the inflation – housing price spiral. Mortgage financing is linked to a wider body of research on the determinants of financial sector development (Badev et al., 2014). This research indicates that the theory has shown the importance of strong contractual and informational frameworks for financial deepening. They help mitigate market frictions related to maturity transformation and information asymmetries (Kuang & Liu, 2015). It goes on to add that cross-country comparisons have demonstrated a significant empirical association between low inflation and credit registries, on the one hand, and deep and stable financial systems, on the other hand (Korkmaz, 2020).

Given the nature of mortgage financing as a long-term investment with increased exposure to risks in supply and demand of financing housing developments on the market in both developed and developing investment climates, the theory narrows down and predicts that these elements should be of even more importance for mortgage finance (Meidani et al., 2011). These interconnected factors start to offer dangers for the growth of housing finance, which creates a problem area that has to be resolved and sustainable strategies to distribute adequate resources for low income-based economies on low-cost housing units.

In Malawi, both the overall inflation rate and house prices have been on an upward trend during the past few years (National Statistical Office, 2019b). The theoretical model demonstrates that there is a positive correlation between rising home prices and inflation. That is both of these variables are endogenously determined. In addition, the model shows that there is a positive correlation between rising home prices and the number of unemployed people. This has been proved by a great number of research to be the fact (Francke & Korevaar, 2021; Haffner & Hulse, 2021; Obioha, 2021).

2.2.5 Corruption "Grease the Wheels" and "Sands the Wheels" Hypotheses

Corruption at aggregate level is a macroeconomic factor and microeconomic factor at individual, household or firm level. Gründler & Potrafke (2019) two theories shall open discussion on how corruption influences economic growth and development either by "grease the wheels" hypothesis which holds that corruption increases economic growth or the "sand the wheels" hypothesis which maintains, by contrast, that corruption decreases it. The empirical evidence tends to suggest that the predictability and causal mechanisms have been that corruption decreases economic growth, especially in countries with low investment rates and low-quality governance and scholars have examined corruption-growth nexus on a continental

basis where Africa and EU member countries indicates a negative correlation and Asia (South Korea for example) shows a positive correlation (Coupet, 2011).

After the end of apartheid in South Africa within SSA region, the newly elected government inherited a country with a severe shortage of housing for people with low incomes. Despite the efforts of many people, getting the housing crisis under control has been significantly hindered by corruption as a major obstacle (Koumpias & Sanz-Arcega, 2021). According to the author, a rise in corrupt practises leads to a decline in housing prices. In Effect, corruption translates into high housing costs and limited finance from lenders that tend to consider risky housing mortgage stock tagged at lower prices on the property market.

As early as 1964, the Malawi Housing Corporation was set up by the Malawian government to construct rental homes with electricity, running water, and flushing toilets that could be sold at a subsidised rate (Nyasulu & Cloete, 2007). However, progress has been sluggish. There are large areas of land owned by the Corporation that have never been developed. As a result, only a handful of people have access to those homes. Corruption is one of the obstacles, with politicians preferring to give preferential treatment to their own family members. According to UN Habitat, more than 100,000 Malawians were on the housing waiting list in 2010. In this study, the hypotheses of corruption on economic growth are linked to economic growth and housing development. The hypotheses are that corruption grease the wheels of housing infrastructure development.

2.2.6 Capital Asset Pricing Model (CAPM)

A pure microeconomic perspective of the housing finance literature stemming from microeconomic based theory is the Capital Asset Pricing Model (CAPM). According to Fama & French (2004) , the capital asset pricing model builds on the model of portfolio choice

developed by Harry Markowitz (1959) which assumes that risk averse investors only care about the mean and variance efficient portfolio on their one period investment return. Further indicating that two key assumptions were added on to the model by Sharpe (1964) and Lintner (1965). Rossi (2016) further contends that the resulting regression line that describes the risk return linear relationship is known as the security market line which CAPM hypothesis that higher risk(beta) is associated with higher returns, to which further indicates that there is little support on that basis and that CAPM provides a methodology for quantifying risk and translating it into estimates of expected return on equity (ROE) and has high predictive power as it has been widely used in applications for estimating the cost of capital for firms and evaluating the performance of managed portfolios.

Calculating risk factors by property type in real estate investment analysis is possible with the capital asset pricing model (CAPM). We require at least two series of historical data with the longest possible horizons in order to apply the CAPM to real estate. The data should comprise at least one complete cycle and at the very least, twenty years of historical behaviour. The robustness of the economic results calls for a minimum age limit of 20 years. The World Bank Development Indicators (WDI) offer data for Malawi spanning more than 20 years. We anticipate a comparable increase in lenders' patronage participation in home finance if the theory predicting high risks to high profits is correct, with a greater base of mortgage portfolios and high returns for the lower income household threshold established inside SSA risky investments.

According to Fama & French (2004), the shortcomings to this model, is first based on the fact that the unrestricted risk-free borrowing and lending is an unrealistic assumption, and is therefore sufficing to say that it is reasonable that investors also care about how their portfolio return covaries with labour income and future investment opportunities, so a portfolio’s return

variance misses important dimensions of risk. Hence, market beta is not a complete description of an assets risk and two it is on irrational pricing and risk from behaviourists views, which is based on evidence that stocks with high ratios of book value to market price (B/M) are typically firms that have fallen on bad times, while low B/M is associated with growth firms. Also, Malawi lacks an advanced financial market to critically examine the suitability on a developed stock market with long term consistent indicator records and non-volatile macro-economic indicators such as inflation and interest rates.

On the other hand, with these shortcomings, the study introduces one of the solutions as Mertons (1973) intertemporal capital asset pricing model (ICAPM) with different assumptions and its own trailing deficiencies, to which the model is about investors objectives extending to investors opportunities that they will have to consume or invest the payoff considering its multi factor efficiency for covariance's of portfolio returns and future state variables. With the above, it is at this point that the foundations of the CAPM model falls short on diversifying risks of a portfolio with the case of Malawi which tends to relate negatively towards housing finance portfolios meeting the demand of affordable housing for low-income countries in SSA.

Ekenta's(2016) study "Application of CAPM on Real Property Investment in Nigeria", determined that a significant obstacle impeding the utilisation of the Capital Asset Pricing Model (CAPM) in real estate investment assessment is the lack of ability to accurately assess risk and return on investment. Therefore, this study examined risk by considering factors such as inflation, interest rate, exchange rate, and political stability, specifically in the context of Malawi and other countries in Sub-Saharan Africa (SSA).

2.2.7 Arbitrage Pricing Theory

Arbitrage Pricing Theory like CAPM, is derived based on microeconomic theory of firms. According to Nguyen et al. (2017) , unlike the capital asset pricing model (CAPM) that asserts

that securities have different expected returns due to their specific betas, per contra, an alternative model called Arbitrage Pricing Theory (APT) developed by Stephen Ross in 1976 draws up more flexible assumption requirements. The study puts it that the APT is an open-source model and is a more generalised version of CAPM and allows the modeller to extend the CAPM by adding additional macro-economic factors to the model such as interest rate, inflation and GDP growth and oil prices. It further indicates that Several APT versions exist among which the notable include the Fama and French three factor model, Chen,Novy-Marx and Zhang alternative Three-Factor Model and the Fama and French in 2015 proposed five-factor model capturing size, value. Profitability and investment patterns. These APT models have been very effective in asset pricing including estate business. Partial differential equations have been used to apply arbitrage theory to the valuation of mortgages (Simon, 2005).

APT Shortfalls include difficulty in the identification and quantification of these specific factors for an investment or stock and that the model does not prevail if there is no arbitrage in the market. However, this shortfall in the assumptions of APT model based on difficulty to identify specific factors, gives us freedom to select the macro-economic events that shape housing finance in this study. APT tends to increase diversification upon the law of large numbers which in turn neglects essential parts of systematic risks and assumes linear relationship between rate of return and premium risks which gives a poor outcome. Afzal & Haiying (2020) seconds that APT is a multi-factor model which was developed because researchers believed that CAPM is unable to capture all factors that affect investments such as stock returns and that the results for this study suggest that for investors to estimate the stocks returns, an investor can also use different factors according to their requirements for APT as every factor affects differently on the APT model. Roll and Rose (1977) critique that beta as the only measure of risk is not enough to generalize the risk of the total market and rejected the CAPM.

The theorem begins to favour APT over the CAPM due to the fact that APT offers a more effective multi factor model to assess our selected variables in the relationship of events of macro-economic factors towards housing finance. The APT Theorem tends to hold to our alternative hypothesis that investments such as the development of housing finance towards affordable and adequate housing for the low-income households in Malawi are determined by its relation to macroeconomic and governance factors using APT model and not the CAPM model of approach centred on its specific beta limitation. Our study takes advantage of this theory and extends its multiple relationship assessment to include not only several macro-economic factors but other governance related factors with a linkage to corruption and informality that influence housing finance market in an economically constrained environment.

As previously stated, the estimate of undivided and indivisible real estate shares in relation to the various types of buildings in Malawi, as in most SSA countries, represents a consistent underestimation on the part of professional appraisers in practise applications (Jones & Stead, 2020). Given that these shares are more difficult to sell and thus have a lower market value, there is a need to find a logical solution that can rationalise the process of estimating undivided shares. To solve this problem, a solution that can rationalise the process must be found. In this framework, APT, like CAPM, could be used to develop a data-driven algorithm for estimating the value of undivided real estate shares.

2.3 EMPIRICAL LITERATURE REVIEW

Everyone has the right to adequate housing, which includes the right to a place to live that is free from danger, can be used as a place of refuge, is habitable, and does not cost too much money. The United Nations Habitat (UN-Habitat) is committed to making sure that everyone has a safe and secure place to live by making the housing market more accessible, affordable,

and sustainable (UN Habitat, 2015). A home is more than just a place to sleep; it's a springboard to a better life and a brighter future. UN-Habitat predicts that by 2030, 3 billion people, or about 40% of the global population, will require adequate housing. This means that every day, 96,000 more accessible and low-cost homes are needed. One in four people on the planet are exposed to factors that pose a threat to their health, safety, and economic well-being.

Housing is a key component of the 2030 Agenda for Sustainable Development and a key driver for achieving many of the Sustainable Development Goals, or SDGs, as stated by UN Habitat (2022). Housing that is both adequate and affordable improves people's health, their ability to learn and their access to employment(UN Habitat, 2022). Roughly 16 million people, according to their estimates, lack shelter in Nigeria. South Africa has a housing shortage of about 3.7 million. It would cost more than $50 billion to bring it up to the level of production in Ghana, where it is currently at 1.7 million units. There is a need for 250,000 new homes each year in Kenya, but builders can only produce about 50,000. Meanwhile, in Malawi, four out of every five families make do with inadequate housing because they cannot afford anything better (UN, 2022).

Published empirical research on the relationship between financing, investment and housing is rare in SSA as compared to Europe, Asia, and America. Most of the variables discussed in the theoretical literature have been researched upon using both descriptive and inferential statistical techniques in other parts of the world with little attention to SSA. The empirical literature review is partitioned into macro and micro economic factors, corruption and Covid-19, and the role of the government as demonstrated in the theories above. It ends with a look into housing data on Malawi.

2.3.1 Housing Finance and Macro and Micro Economic Factors

Other informal sectors of economies in emerging markets Latin American countries with respect to financing housing offer poor households opportunities in sourcing resources for construction work through non-mortgage micro loans with the government of Mexico having recently incorporated informal housing finance schemes into main stream national housing policies that tend to incentivize institutional investment in microfinance (Grubbauer, 2020). The study exemplifies that this modestly sophisticated emerging market economy, as a result of characteristics of low, insecure and irregular incomes coupled with a lack of access to formal credit and formalized land titles to provide collateral, has led to urban dwellers resort to self-organised, incremental and long-term building processes.

This is mostly the case with SAA countries including Malawi with underdeveloped financial systems and limited access to credit. This is achieved through the use of informal networks such as community-based savings and loan groups, as well as micro finance (suitable proxies for informal finance variables). This is an approachable alternative to the formal provision of housing financing that is available to people with lower incomes. This comes with the benefits of project briefs and technical assistance support on reduced household project costs from social networks to social enterprises organizations and financial investor networks. These benefits can be accessed through the projects' respective website sources. This is done in order to give people with lower incomes access to housing that is more affordable for them.

Though centred on rural micro finance than housing finance in urban areas, critics have also emphasized on the commercialization of microfinance can have adverse effects of excessive profit orientation and high interest rates, multiple borrowing, and heightened client indebtedness (Blackwell & Kohl, 2017). The hypothesis of the study was that the incorporation of informality into mainstream development policy leads to private sector led development with

space for new financial actors and position access to finance for social inclusion thereby contributing to acceleration of housing finance development for low-income groups beyond conventional means. This might be the case in a developing nation like Malawi, where the average income of the people living there is quite low. Those who are more susceptible have a greater propensity to fall further into debt when they have fewer formal financing options. This is coupled with extremely high interest rates available in the conventional mortgage market, which are out of reach for most people. Together with corruption, factors such as high inflation and low wage growth are contributing to the growing possibility that the housing market will crash.

The expectation for a developing country like Malawi is that it will exhibit similar economic inadequacies with deeper challenges of its informal sector on low-cost housing financial needs, which will be regarded as a luxury good for the lower end demographics of its population. This demand in the informal market is created by a need for housing ownership in urban poor communities as a result of increased urban population pressures with no immediate access to land titles and formal loans, which is without the availability of an over-the-counter commercial bank loan that tends to create a window of opportunity for the establishment of microfinance schemes with the view of closing that gap.

Another challenge to this model which is mainly related to the Informality on Housing Finance Markets Theory, is Malawian Government has weak institutional mechanisms that needs to adopt policies and actions of spearheading microfinance policy programs to incentivise private sector participation for purposes of both market-oriented and socio-economic led objectives. Again, a lack of state resources remains a challenge in ensuring subsidised capital for self-help housing projects in Malawi, which is sometimes undertaken by donor-led funding agencies. It is anticipated that increased informal sector use of microfinance for low-cost housing finance

will increase loan accessibility, which will ultimately result in increased housing supply in an urbanizing market area.

This prediction is based on the assumption that increased informal sector use of microfinance. This is related to the question about the macroeconomic (such as inflation, interest rate, and economic growth) and microeconomic (such as corruption, individual prices, and income) factors that affect housing. The variables that are of concern are those that are microeconomic in nature, such as subsidies, personal income, and levels of corruption. Macroeconomic variables, such as inflation and interest rates, are also of concern.

The third determinant of macroeconomic variables used were inflation, real exchange rate and GDP growth rate to which an increase of GDP leads to decrease in default risks on the loan market. It is anticipated that increased informal sector use of microfinance for low-cost housing finance will increase loan accessibility, which will ultimately result in increased housing supply in an urbanizing market area. This prediction is based on the assumption that increased informal sector use of microfinance. This is related to the question about the macroeconomic (such as inflation, interest rate, and economic growth) and microeconomic (such as corruption, individual prices, and income) factors that affect housing. The variables that are of concern are those that are microeconomic in nature, such as subsidies, personal income, and levels of corruption. Macroeconomic variables, such as inflation and interest rates, are also of concern.

Apart from the study having considered micro economic factors in its model, it was limited to a few commercial banks and not entire development finance institutions or pension funds as universal owners in the capital market of Malawi. We note that NPL as the dependent variable in this case in larger economies has less systemic risks and is likely to have fewer non-performing loans whereas in smaller economies like Malawi it might affect profitability if NPLs

are high irrespective of what the macroeconomic conditions are by their virtual size and thereby constraining amount of finance provided on the market. As a result of the fact that this tends to show a positive correlation between NPLs and macroeconomic factors such as real interest rates, the CAPM will fail at some point in the future. This is due to the fact that it indicates that high interest rates will not lead to increased performance and profits of mortgage loans issued by lenders to their borrowers in the market. Some of the moderating factors that may affect loan performance in this study include the magnitude of population in the housing finance market of that area as a proxy, which we adopt as an independent variable, urban population growth, to draw a relationship with the dependent variable, which is now specifically as a mortgage (housing finance development) in this same market of study. In addition, some of the moderating factors that may affect loan performance in this study include the magnitude of population in the housing finance market of that area as a proxy, The GDP growth rate, a real interest rate variable rather than a single inflation rate, and lending interest rates are some of the other variables that were considered for this research.

The use of this criteria of macro-economic factors is likely to work in our study as it has empirically influenced the investment portfolio of a dependant variable NPLs in the banking sector, to which we shall now compare as a specific dependant variable housing finance in same Malawi. Therefore, the adoption of these macro-economic factors is on that basis of selection in our study to see the impact of housing finance by macro-economic factors. The study's null hypothesis is Macro-economic indicators tend to influence commercial bank default risks (non-performing loans) on the loan market based on the CAPM model approach. Distilled from this, our alternate hypothesis takes note of the shortfalls of the CAPM model and delves into scrutiny of an Arbitrage Pricing Model. Based on a multi-risk model of the APT approach, this study proposes an alternative hypothesis, which states that the specific sector of housing investment

finance does, in fact, have a relationship with various macroeconomic factors. In order to investigate this hypothesis further, this study further explored housing stock availability and affordability.

Owuor (2017) undertook a study whose objective was seeking to determine the relationship between macro-economic factors and mortgage market growth in Kenya, East Africa of SSA, which was based on the foundation concepts of arbitrage pricing theory (APT), and capital asset pricing theory (CAPM). The ATP theory indicates that macroeconomic variables like interest rates, inflation, money supply and others influence the value of the investment of real estate which then tends to concur to the concept theory of APT as a multi factor than the insufficient single factor model of CAPM. The model of the study was centred on descriptive research for data patterns and inferential statistical techniques of linear correlations and multiple linear regressions to draw conclusions and predictions on relationship between the selected independent variables of interest rates, inflation, exchange rates, control variables of gross domestic product (GDP) growth and government policies, and the dependent variable as mortgage market growth. According to the findings of the study, there was a significant and positive relationship between interest rates and inflation, while there was a negative correlation between interest rates and the growth of the mortgage market. According to the findings of the study, there was also a tangentially positive connection between currency exchange rates, GDP, and the expansion of the mortgage market.

Kenya tends to have the most advanced mortgage market in east Africa, though has an excess demand for housing finance which shows a housing investment lag to demand at their development stage as a low/middle income country which could be based on the theory of elasticity of income to housing finance. Malawi on the other hand, has an underdeveloped mortgage market to which we intend to examine the variables relationship to low-cost housing

finance, given the differences in their development levels of incomes even both being developing nations. This study in Kenya also acknowledges that various government initiatives, such as tax breaks and incentives, have helped the mortgage industry grow. This study's findings are relevant to the study's question about the role played by the government in financing housing development in Malawi.

It was noted that the gap in this market study tends to lock out the underserved population for the lower income households constrained by housing credit criteria and our study excludes the variable of exchange rates and focuses more on proxies for the vulnerable to housing finance access, by shifting towards the examining of independent variables relating to the underserved such as urban population growth influence on low-cost housing finance in lower income Malawi. This study proposes adding the GDP per capita to our model so that we can investigate the influence of the income elasticities of the population on housing finance for Malawi. Another modification that we propose adding to this model is the inclusion of government debt so that we can investigate the relationship between government expenditure and low-cost housing investment finance in low-income economies over time.

The hypothesis for the study is that risks emanate from macroeconomic variables based on the arbitrage pricing theory (APT), affect the mortgage market growth in Kenya's economy as a middle income-based country. Our study hypothesis characterised on a lower income economy is that risks emanate from macro-economic factors that tend to influence housing development finance based on the CAPM single model for a less active underdeveloped economy. As a result, our alternative hypothesis moves to the next step, which is to investigate whether or not APT holds for economic variables and other exogenous factors for the housing finance investment climate in Malawi. Our alternative investigates whether or not the role of the government in housing expenditure influences housing finance in Malawi, while

simultaneously stifling the credit market and causing credit rationing.

Another study by Khare & Kader (2016) on barriers constraining the low and middle income housing finance market carried out in Bangladesh of Asia, addresses issues of credit rationing theory, by indicating that primary mortgage lenders including banks and non-banks are constrained to rely on short term financing for loans which results in mortgage finance being available to higher income households. This further contributes to the exclusion of the underserved population, which is in critical need of housing that is both accessible and adequate. The purpose of the research was to determine the current and future state of low- and middle-income housing finance (LMIHF), as well as the obstacles that stand in the way of its development in the market, and to devise a strategy for gaining access to housing finance.

The study identifies constraints that limit long term financing and impede development housing needs in Bangladesh as underdeveloped insurance, pension fund, mortgage markets and long-term capital markets in addition to economic and financial market constraints. Consequently, the study further reveals that even participants on the demand side like micro lenders and the supply side such as private developers have scaled back on micro finance and low-cost housing finance being non-existent leaving a huge gap on LMIHF. Despite the fact that the method of research that was used was qualitative, this study still makes a contribution to the beginning and expansion of a dialogue for public and private participants that will be used to determine the future path of housing finance supply and demand. On the other hand, our research makes use of a more in-depth analysis of a mixed methods approach that is tailored to the demographic of low-income households.

With similar difficulties in the Asian emerging market in Bangladesh to several SSA countries, the study is deemed relevant by allowing to unlock comparable approaches for LMIHF

Bangladesh housing gaps identified as LMIHF untapped market for the underserved population, identify bottlenecks of its weak business environment, barriers of infrastructure deficit, and skill shortages revealed in attempts to resolve the identified issue areas of housing finance. The purpose of this research was to determine how primary mortgage lenders' reliance on short-term financing for loans affects mortgage finance constraints to current and future low- and middle-income housing finance (LMIHF) in Bangladesh Asia.

The study utilized descriptive statistics while our study will utilize a regression analytical model, which is more robust in nature targeted for the low-income households in Malawi SSA. The study's hypothesis is the demand for low and middle-income housing finance is influenced by demand and supply factors of the mortgage market within an economically constrained environment of the Asian country (With its mortgage market mortgage debt to GDP is about 3%). This study, in this case both quantitative and qualitative, attempts to demonstrate housing finance opportunity that can be utilised to meet the demand of affordable low-cost housing against key macro-economic factors and other country specific factors within a resource constrained developing African state.

The study of Nguena et al. (2021) using a panel data base of 48 sub-Saharan countries, analyses the structure of housing finance in Africa, its determinants and its impact on inclusive growth with its findings indicating that market capitalisation and urbanisation are key determinants to housing finance and post conflict environment being conductive to the dependent variable of housing finance. It further suggests that housing finance is driven by market forces of demand and supply. The paper also shows that above a certain threshold housing finance development can be efficient to reduce inequality and that there is a slightly positive relationship between housing finance and economic development in Africa. In the study, econometric analysis was utilized. The investigation reveals that the capitalization of stock markets and the growth of

urban areas are both significant. In some countries, the private sector receives insignificant amounts of credit, and this lack of credit has a negative correlation with housing finance. On the other hand, it has a significant impact and a positive correlation to housing finance with regard to other factors.

This subsequently presents that the assumption of banking development being a catalyser of housing finance should be reconsidered. Another critical aspect the study brought to our attention is that highly developed housing financial systems tend to lower levels of inequality than those of bank-based financial systems to which credit rationing thrives in. The study further shows that in post conflict country, housing finance depth is contrary to inequality which could be attributed to distribution of money favouring the wealthy than the poor. In conclusion, it demonstrates that a detrimental impact toward inequality is seen with regard to human capital. This suggests that greater levels of economic development and human capital are associated with lower levels of inequality. This is consistent with both the theoretical and empirical research that has been carried out.

The study shows that in its first regression assessing housing finance determinants, the dependant variable is housing finance. The independent variables consist of stock market capitalisation, urban population growth, GDP per capita for level of development for the country and GDP growth with set of control variables. In its second regression the study employs assessing linkage of housing finance and economic growth through GDP per capita given by neoclassical growth theory study review. In its third mode, it assesses the linkage between housing finance and inequality based on the development theory. Gaps in the study identified is that it does not focus more on specific issues facing housing markets in Africa and our study narrows down to Africa with a comparative approach to the Asian market for similar characteristics, rather than the diluted extended global level comparison approach. For instance,

as further addressed in our forthcoming governance factors section, in this study the translation of an efficient United States administration setting of greater tax revenues to local government that often leads to better infrastructure for the population and reduced inequality may not hold for several African countries as a result of limited resources and capacity to execute, levels of corruption, problems of transaction of costs economics based on opportunism or lack of capacity in government institutions.

In view of the above, for our study we assess availability of quality of housing using regression model with the perspective of economic growth and development, governance, and inclusive growth issues, based on macro and microeconomic factors and governance factors. Another element in the model is public spending, as the enabler, in form of government debt in its share of national budgetary funding influencing housing finance. GDP and government subsidy is adopted for development level purposes and informal finance (IF) to gauge inclusive growth is also used as a variable to determine the extent of informal finance social network roles in low-cost housing finance development.

2.3.2 Corruption

According to the existing theoretical literature, corruption may either have a positive or negative impact on economic growth and housing indirectly by way of economic growth channels (Koumpias et al., 2021). The available data tend to support the hypothesis that corrupt practises slow economic growth, particularly in nations that have low investment rates and poor governance (Pioneering et al., 2021). Moreover, academics have investigated the connection between growth and corruption on a continental scale, finding that a negative correlation exists in Africa and EU member countries, whereas a positive correlation exists in Asia (for instance, South Korea).

In this particular investigation, the hypotheses concerning the effects of corruption on economic growth are linked to both economic growth and housing development (Zinnbauer, 2020). According to the hypotheses, corruption is the lubricant that keeps the wheels of housing infrastructure development turning. The research question as well as the hypotheses are supported by this finding. The variable of interest here is corruption, and it is generally accepted that it has only a marginal impact on housing.

Reports from a variety of sources, including those from transparency, suggest that Malawi is plagued by a wide variety of forms of corruption, ranging from political corruption at the highest levels to petty bribery that hinders service delivery and patronage. According to Nkhonjera and Vilakazi (2021), this has had a negative impact on housing throughout the process. This has primarily been the result of improper use and appropriation of funds intended for public housing.

2.3.3 The Impact of Covid-19

Because of Covid-19, housing costs around the world are rising at their swiftest rate in the past four decades (Gopinath et al., 2020). From the supply and demand of goods to the price of goods and the lack of available labour. The economic impact of the epidemic puts the homes of many millions of people, particularly renters and small landlords, in jeopardy of being lost. Renters and small landlords are especially at risk. Too many individuals live in homes that are so congested that it is nearly impossible for them to maintain their privacy. There are millions of people who do not have appropriate access to water and sanitation to follow recommended hygiene practices (Yiu, 2021).

The COVID-19 pandemic broke out in Malawi during a time when there were widespread protests against the government and subsequent large gatherings of people. The global COVID-19 (coronavirus) pandemic has derailed Malawi's plan for rapid economic growth over the next

three years; however, it is still too early to determine the full extent of the impact as the crisis continues to play out.

According to a report by Night Frank (2021), the Covid-19 Pandemic has had an impact on the housing market in Malawi. In the early months of the year, the institution conducted a survey and discovered that the pandemic had a negative impact on the housing marketing. Director Don Whayo of the institution in Malawi said that while the market for residential properties was stable, the market for commercial properties and those for sale had been severely affected with many businesses adversely affected and others going out of business. Instead of growing their businesses, companies were trying to keep their current ones afloat (Magalasi, 2021).

Credit rationing has increased as banks have been reluctant to lend because of the pandemic and businesses are no longer booming, making it difficult to repay the loans. According to Nyasulu et al. (2021)W, infrastructure development is eventually slowing down. Many businesses in Malawi are housed in rented structures. In effect, Covid-19 is expected to affect all other macro and microeconomic variables including inflation and interest rate and will translate to high housing prices.

2.3.4 Role of Government in Housing Development Finance

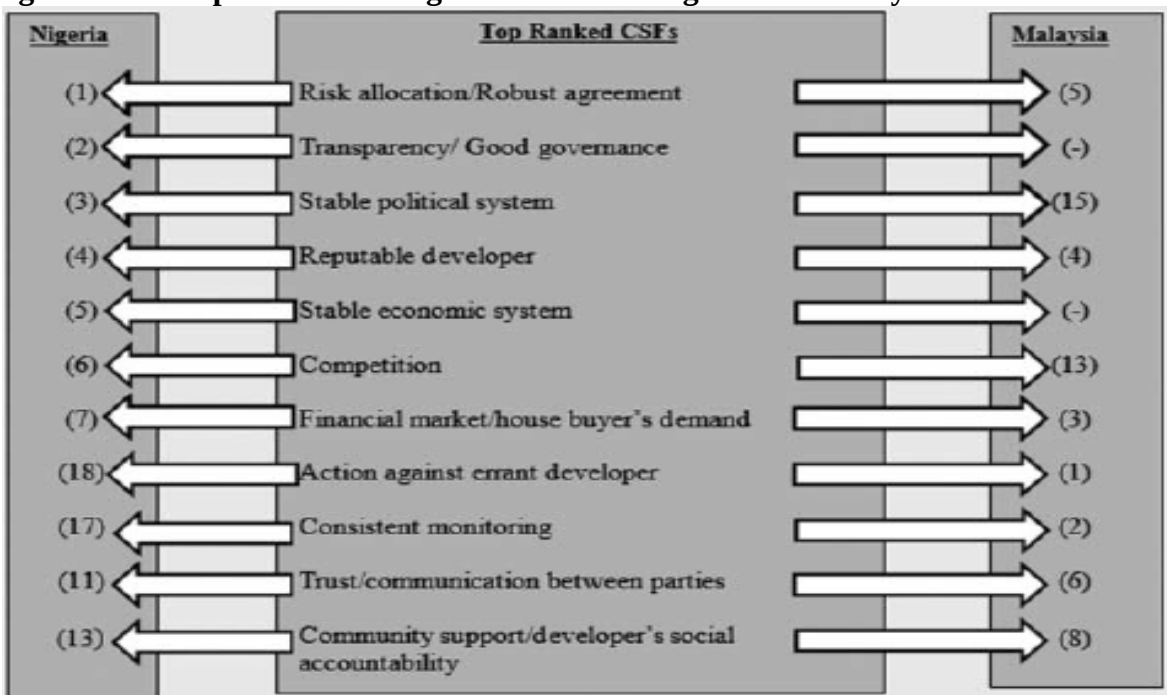
In view of public sector governance role towards housing development finance, we begin to look at first the study by Muhammad and Johar (2019), which uses a case study approach to analyse the similarities and differences of the critical success factors that influence the success of housing projects through the delivery system of public private partnership(PPP) vehicle in Nigeria of Africa and Malaysia of Asia.

In terms of predictability and direction, the case study reveals that equitable risk allocation, stable political projects and reputable developer are the most critical success factors (CSFs) in

the case of Nigeria, whereas action against errant developers, consistent monitoring and house buyer's demand are the CSF that influence success in housing projects in Malaysia. Critically we observe that Nigeria in this case faces other critical non-economic challenges of political and quality institutional factors than its counterpart in Asia based on market economic alignment. The study identified and ranked the CSFs with respect to their relative importance in housing projects success as indicated below.

In order to consider as to whether governance role influences housing finance holds true in Malawi, it is good to consider that the Government of Malawi passed an act in Parliament in 1964 that established Malawi Housing Corporation (MHC), a statutory body whose sole owner is the country's government. Through this parastatal, the government has financed affordable housing projects since its inception. The question now is whether this has contributed positively to affordable housing in Malawi and whether it has contributed to the macroeconomic environment regarding housing finance and how it has been affected by corruption and the recent Covid-19 pandemic.

Figure 2.1: Comparison Ranking of the CSFs in Nigeria and Malaysia



Source: International Journal of Construction Management, James, 2016

The Asia region has already made progress that certain factors are no longer regarded as priorities, such as in Nigeria, where the top three indicate that as a result of being regarded as important due to the nature of the procurement process, lack of transparency, and good governance factors in housing project procurement are highly ranked as a critical issue area to ensure success. Whereas the Malaysian government has maintained a strong procurement registration system with robust and clear agreements ensuring transparency and reducing allegations of favouritism, corruption, and political interference, it is the lowest ranked. Nigeria considers a stable political system to be extremely important, ranking third compared to Malaysia, due to the relative instability of ministerial offices and commitment to honour previously undertaken contractual obligations, which has resulted in the suspension and subsequent revocation of land allocations, thereby worsening demand for housing finance. In the case of Malawi, historically similar traits are observed as key challenges in public service is lacking in transparency and good governance.

The principal agency theory is shown in this case of Nigeria where corruption has become the principal (Government)-agent (civil service) problem when the principal requires a service from the agent, but the principal lacks the required mechanisms to monitor the actions of the agent as this can be observed that the system is still deficient and side lined in its low ranked areas of legal actions to perpetrators, consistency of monitoring and trust between parties (Adediran & Mohd Ali, 2021). PPP projects in housing address the needs of middle-income segments, which excludes other social obligations by developers and as a result leads to high housing prices, which then fails to bridge that gap in economic growth and development, reduce inequality, and build inclusive growth for affordable low-cost housing through the use of PPP housing system. The gap in the study is that the PPP projects in housing address the needs of

middle-income segments, which excludes other social obligations by developers.

This is a non-economic variable of weak institutional mechanisms and political instability which is significantly factored in Nigeria in relation to access to housing finance as a tool for affordable housing demand in SSA with Malawi not being an exception to the rule. The financial market in Nigeria is not significantly considered as it assumed that the market is well developed and is not a major critical success factor on the list. In contrast, Malawi's capital market is indicated to still be at infancy stage despite being in existence for 25 years and that its critical evaluation also reveals that it is wholly owned by government and its central bank continues to roll out policies which are fundamentally flawed as it does not follow simple market principles of demand and supply Kampanje (2019). The government could facilitate the expansion of the financial market by encouraging other private institutional investors, such as insurance and pension funds, to participate as long-term investors who are in line with the typical maturity of housing investment finance. This would be one of the potential optimal options. The alternative hypothesis states that public sector governance has a greater potential to influence the housing finance development market in Africa than it does in Asia. This is based on the critical success factors in each region.

The study recognises that traditional moderating factors influence housing finance markets on a global scale, there is a critical yet frequently misused as a figure of political rhetoric. The corruption in Malawi that is caused by the interaction between the private and public sectors is getting worse despite the abundance of anti-corruption policies that have been put in place. The complex key drivers of corruption in Malawi are associated with political meddling, structural drivers of weak institutional mechanisms, economic drivers with constrained growth, and personal motives associated with high-profile figures. This is despite the fact that Malawi has a multitude of anti-corruption policies (Tengatenga & Soyiyo, 2020).

The report captures those high-ranking officials engage in grand corruption out of greed and enrich themselves by colluding with private sector to abuse public resources (Gao & He, 2020). This can have a knock-on effect of increased illicit funding as diverted state funding into increased housing cycles by independent private sector housing project participations on market for the political elite, despite having an ailing economy with limited public sector spending resources at its disposal. This continues to impede the achievement of sustainable development in the country with a negative impact of inequality and poverty, poor service delivery in the public sector, poor public infrastructure, and shortage of drugs in public hospitals. From 2013 to 2019, Malawi had a low CPIA, which indicates that the country's level of corruption is getting worse. The alternative hypothesis states that the profits made from corrupt practices have the potential to be used to increase the amount of illicit funds invested in the housing market. It is also possible that corruption will cause the housing market to run out of money, but that's not the only possibility.

In a study conducted by Pashane Zuka (2018), it examines the shift of governance on the overall housing market landscape and effects of rent controlled public housing sector on the supply of private rent housing and household mobility. Its findings are varied in that they depend on nature residential market as well as the political environment under which the rent controls are implemented. The evidence in Malawi is consistent with the view that widespread rent controls result in the reduction of housing supply. The ‘defacto’ application of rent control under the one-party era effectively curtailed private investment into residential real estate sector leading to housing shortages on the market.

Post the one-party state, the liberalised economy has produced mixed outcomes as household mobility has not changed as sitting tenants are holding on to the housing units and resist

measures to match market rentals. In addition, because the production of rent-controlled public housing units is so low in comparison to the demand for them, these units are virtually non-existent and have a negligible impact on the demand and supply dynamics of the private housing market and finance. The study also confirms evidence in the existing Malawi Housing Company (MHC), which only produces 300 housing units per year despite an estimated demand of 21,000 units, indicating a huge gap in the performance of the public housing sector.

The study evidently indicates that the political environment overtime significantly affects the economic landscape for housing finance in Malawi. The aforementioned study backs the notion to our study that governance tends to play a role towards housing development finance in Malawi, even based on rental control measures which inclines to undermine overall supply of housing development from other key stakeholders against the backdrop of other macroeconomic factors that influence affordable low-cost housing deficits. A liberalized approach to the development and financing of housing that is available for rent or purchase is one of the optimal options. This ensures that would-be investors on the free market can earn non-restrictive attractive returns. An alternative hypothesis is that government intervention in the form of rent control will lead to a reduction in the stock of available housing on the market.

The study examines as to whether greater prevalence of government-owned banks leads to qualitatively different outcomes. The objective of the study is to determine if greater government participation in financial systems leads to greater financial stability and also greater finance provision for welfare generating activities. The findings suggest that the effects of government participation in financial systems are complex and context dependent. This is because the effects of government participation on state-owned banks can either be viewed from the perspective of capital development in limited economies or from the perspective of social related issues for the underfinanced, both of which tend to have expected positive

externalities on one side, or from the perspective of a political view of state-owned banks as rent-seeking ventures on the other side (Dutt, 2020). This opens the door to the possibility of corrupt dealings between public officials and the political elite who exert influence over government-owned banks.

Ruiz (2022) indicated for government owned banks or development finance institutions (DFI) is that they provide finance that privately owned banks fail to provide and finance long term capital projects that add to economic growth and development. In contrast to private banks, government-owned banks are more likely to be guided by a social purpose rather than the principle of maximizing profits. This presents an opportunity for an optimal potential for increased DFI participation in the development of housing finance, in addition to acting as a stabilizer in the financial market system of Malawi. It is possible for politicians to use their control of state-owned banks to further their own political ambitions by providing political patronage or favourable credit terms. This is one of the drawbacks of having state-owned banks. For Malawi, greater participation by the government would breed crony capitalism in the system and further impede the much-needed economic growth (Chikhungu et al., 2020). Banks that are wholly owned or mutually owned by the government are expected to be less efficient than private banks because they are under less pressure to minimize costs and maximize risk-adjusted returns backed with government guarantees in developing countries, where developmental roles are more important from the perspective of the government. This results in lower profitability, higher overhead costs, and greater credit risks as a result of the more socially responsible banking practices of government-owned banks. On the other hand, the problems of bank ownership and efficiency that developed countries face are not particularly significant because these countries are better equipped to deal with distortions (Jones & Stead, 2020).

Given that the study found a negative relationship between government ownership of banks and growth in countries with lower financial development (Rust, 2012). However, as the level of financial development rises, this relationship weakens and turns positive. It is hypothesized that Malawi's financial markets are not yet fully developed. If this is the case, then it stands to reason that a slower rate of financial development would be accompanied by greater involvement from publicly held banks. The alternative hypothesis states that an increase in the participation of government-owned banks in developing financial markets will slow the development of the financial sector.

According to the findings of this study, involvement and participation on the part of the government can also be extended to the central bank. A recent study found that in practice, the relationship becomes significantly more complicated as a result of the interaction of fiscal and monetary policies, in particular in order to keep up with rising demand. For instance, when governments boost the availability of housing on the market by means of public investment, many possible outcomes may come into play depending on the ways in which the money supply, interest rate, and GDP interact with one another. Domestic credit is the main vehicle through which changes in money supply are regulated, with central bank lending to the government often playing the most important role. The central bank can regulate lending to the private sector in several ways. For example, by adjusting the cost of the refinancing facilities, by changing market interest rates through open market operations, or by controlling the availability of credit through changes in the reserve requirements imposed on banks and ceilings on the credit provided by banks to the private sector (Dasgupta et al., 2014). Extreme government intervention can at times lead to market failure as opposed to a free-market economy aligned to the market principles of demand and supply.

The background of public sector implementations for common means of providing affordable housing in Africa were based on direct government provision, during the independence period of the 1960s, for the public sector and middle class and consequently the funding was soon depleted (Obioha, 2021). A second phase of site and service approach was used which involved supplying households with surveyed plots with certain services and a core basic structure. As a result of rapid urbanisation, squatter settlements mushroomed in cities with government trying to increase housing through direct investment but failed to keep up with the pace of the urban growth (Ganiyu et al., 2017). After that, a more sustainable approach was used, and in the 1990s, international housing policy shifted towards an enabling approach. This shift occurred in accordance with the UN-Habitat Global Strategy for shelter, which calls for governments to facilitate the housing development efforts of households and private markets by providing supportive legal, regulatory, and financial environments (World Bank Group, 2015).

For instance, in a case of Ethiopia on government housing provision, government programs that subsidize housing still do not meet affordability criteria (Tadashi & Jonathan, 2015). Under the Integrated Housing Development Program (IHDP), the Ethiopian government shoulders the burden of housing delivery for low and middle class whilst the private developers deal with high end housing projects (Alemu, 2021). The IHDP is a government subsidy program with the goal of improving affordability of housing, where the government constructs condominiums for sale with a large upfront subsidy. The terms of the government mortgage contract include a down payment anywhere from 10% to 40%, depending on the size of the housing unit and the income of the household. In spite of these efforts by the government, the population that is intended to benefit from this program will not be able to afford the least expensive formal unit. A sign that the subsidized government expenditures on housing can be a failure to provide homes for low-income households that are targeted in urban areas.

Considering Malawi limited resource base with huge infrastructure deficits, the country stands to benefit from frameworks that enable the private sector to partake in housing development and finance (Nyasulu & Cloete, 2017). This reduces the cost burden to the government, spurs competition and consumer choice as well as avoids land speculation in cases of subsidies that encouraged land speculation by intended underserved beneficiaries who acquired high value land in urban areas at little or no cost. In addition, the research highlights the fact that there is no one solution to the problem of housing subsidies. Instead, it suggests a better understanding of the specific contexts of individual countries and the value chains involved in the delivery of housing in order to match subsidy intervention. An alternative hypothesis states that the government's intervention in the form of subsidies results in inadequate services being provided to low-income households in urban areas.

A recent case study in the city of Gaborone in Botswana was undertaken with the purpose of evaluating the housing delivery to low-income households through a government initiative scheme for housing finance called the Self-Help housing Agency (SHHA) (Kampamba et al., 2018). The methodology used was based on mixed methods approach with a sample size of 93 plots. This government program is based on the concept of "site and service," which entails the provision of land that is already serviced and the construction of a basic structure, as well as the facilitation of housing development through the provision of financing in the form of building materials loans (BML) with interest rates that are subsidized. According to the findings, the government housing program faced challenges in the form of the targeted low-income group selling their houses to the middle-income group predominantly in the area as a result of the increasing demand from the growing population in the city.

This was a challenge because the middle-income group accounted for the majority of residents

in the area. Beneficiaries of SHHA houses have been encouraged to sell their homes on the robust open market as a result of rising property prices, which have been caused in part by urban growth. The implication is that people with low incomes are being relocated, which opens the door for illegal settlements to flourish in the cities at the expense of the government. The review of regulations for fixed periods before transfer, increased allocation of plots for available finance, and increased funding were the three pillars on which the recommendation to discourage speculation on the part of SHHA beneficiaries was founded (Kampamba et al., 2018).

The study therefore highlights that though a country such as Botswana with relatively stable macroeconomics of lower interest rates and inflation, higher GDP per capita and with a smaller population density in comparison to Malawi, the problem of housing investment keeping pace with the demand accrued from urban population growth still lags. Considering that the issue area is not heavily focused on limited resources for a middle-income economy like Botswana as the key challenge of an affordable housing scheme delivery, it would also be applicable for low-income Malawi that more firm and sustainable frameworks should be integrated in the decentralised government to council structures for the monitoring and implementing long term affordable housing schemes. Alternative hypothesis is that Government Self-help housing schemes as subsidized low-cost housing provision induce informal settlements and increase displacement in urban populated areas.

2.3.5 Informality in Housing Finance Markets

Mortgage markets provide expensive short-term home loans, conditioned loan to value (LTV) ratio and conditioned payment-to-income ratio from which stem limited housing affordability, were the majority of Africa's housing demand will have to consider less conventional/informal financing options to meet housing needs. John F.C. Turner's theories advocate on assisting

self-help housing as the most affordable housing option in developing economies as against the formal options like mortgage finance, where the adapted framework focuses on the end user needs to build their homes by relying on incremental housing/informal finance more suitable for economic realities of Africans.

This theory has been applied in Europe, America and developed and developing world and it has helped to solve their housing finance problems (Blackwell & Kohl, 2017; Jones & Stead, 2020; Oladeji et al., 2021). The way it works is that these low-income groups would raise building funds over a long period of time from their social networks or workplace cooperatives and gradually own land and eventually build a home.

In Malawi the average mortgage payment is about 150% above the average monthly income level, the ratio of average house price to annual income is more than 5 considered unaffordable for more than 50% of households living in urban areas and that only about 35% of the population can access formal finance sources which can be as a result of low-income levels and a high level of insecure jobs considering its stringent credit criteria's and a rudimentary mortgage market at present.(Oladeji et al., 2021).

2.3.6 Overview of Malawi's Housing Statistics

Actual housing statistics is hard to come by in Malawi. Most studies have relied on data from World Bank which in most cases are not actuals of the specific issues under investigation. The table below shows distribution of households and household size by region as reported by the 2008 and 2018 censuses.

Table 2.1: Distribution of Households and Household Size by Region

Region	2008		2018	
	Number of Households	Average Household Size	Number of Households	Average Household Size
Malawi	**2,869,933**	**4.6**	**3,984,986**	**4.4**
Northern Region	336,602	5.1	472,376	4.8
Central Region	1,192,139	4.6	1,713,010	4.4
Southern Region	1,341,192	4.4	1,799,600	4.3

Source: Statistics Malawi, 2018

The tale shows that the number of households in Malawi in 2018 was 3,984,986. The population of Malawi according to the same was 19,129,952. Dividing this by the number of household's results in 4.8 average household size. Given an average household size of 4.4 suggest that a gap of 0.4 exist and could be living in makeshift conditions. In addition, not all of these households are permanent structures with good living conditions. This can also attribute to the continued mushrooming of slums in urban areas to meet the demand from the overwhelming population to the adequate and affordable housing. The table shows the types of housing unit according to the same census of 2018.

Table 2.2: Types of Housing Unit

Type of Housing Units	Malawi		Northern Region		Central Region		Southern Region	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	**4,805,431**	**100.0**	**565,331**	**100.0**	**2,098,353**	**100.0**	**2,141,747**	**100.0**
Permanent	1,974,613	41.1	304,588	53.9	704,277	33.6	965,748	45.1
Semi-permanent	1,107,447	23.0	148,691	26.3	463,829	22.1	494,927	23.1
Traditional	1,723,371	35.9	112,052	19.8	930,247	44.3	681,072	31.8

Source: Statistics Malawi 2018 Census Report

The tale shows that the number of housings in Malawi in 2018 was 4,805,431. Permanent structures were 1,974,613, semi-permanent were 1,107,447 and traditional ones were 1,723,371. The population of Malawi according to the same was 19,129,952. Given that semi-

permanent and traditional houses are normally below living standards, only 53.9% (1,974,613) of the total housing unit could be very good for living. With an average household size off 4.4, dividing the total population by 1,974,613 permanent housing unit will result to household size of 10.1. This suggests that more than half of the households are living in semi-permanent and traditional housing units with substandard living conditions.

2.4 SUMMARY OF LITERATURE REVIEWED

The existing theoretical literature posits that housing finance cannot be adequately explained by any singular theory. In order to address the limitation of relying solely on a single theory, this study incorporated various theoretical frameworks, including the Theory of Interest Rate and Housing, Population-Housing Hypotheses, GDP-Growth Hypotheses, Inflation-Housing Price Hypothesis, Corruption "Grease the Wheels" and "Sands the Wheels" Hypotheses, Capital Asset Pricing Model (CAPM), and Arbitrage Pricing Theory. Although the intuitive judgements of individuals may have mixed outcomes, they serve as the foundation for the variables under consideration in this study. This is exemplified by the instance of Malawi, which shares similarities with several other Sub-Saharan African countries.

The existing body of empirical research highlights the rising concerns around housing. This study examines the interplay between housing finance and macroeconomic and microeconomic issues, as well as the influence of corruption and the impact of the Covid-19 pandemic. Additionally, it investigates the role of government in housing development finance, the prevalence of informality in housing finance markets, and provides an overview of housing statistics in Malawi. In contrast to previous research endeavours that generally focused on larger states with abundant resources, the present analysis is centred on Malawi, a relatively tiny African nation characterised by limited resources. Moreover, unlike the prevailing approach in most research that relies solely on descriptive or correlational approaches to assess the impacts

of housing finance and other variables, this study employs a combination of descriptive and inferential quantitative methods as well as qualitative analysis.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

In this chapter, attempt is made to shed light on the methods and techniques that are needed to be adopted in order to arrive at the goal of the study. It begins with the research approach, research design, specification of the model based on theories and empirical evidence as put forward in the literature review, which is then be followed by the description of the data for the study and the estimation procedures. The diagnostic procedures and carried out are also discussed.

3.2 RESEARCH APPROACH AND DESIGN

To answer the research questions and achieve the research objectives, this study employs mixed method. The central premise of mixed method is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell & Plano Clark, 2007).

The quantitative method was used to answer the research questions 1, 2 and 3. That is the quantitative effect of housing finance, macro and microeconomic factors and corruption on housing. Additionally, in order to answer these research questions 1, 2 and 3 using qualitative deduction and to corroborate and give more meaning to the quantitative method, qualitative method was used using content and logical analysis. The qualitative method was used to answer research questions by exploring the opinions of public and private sector respondents to make deduction from the reviewed hypotheses. It analysed their opinions on the effectiveness of policies and regulations, governance factors, private sector finance, housing finance models applied and the rest. To confirm, based on the reviewed literature and the study objectives, the hypotheses are that the relationship between housing finance and housing is positive and significant. That is if housing finance is increased, housing will increase and vice versa.

Macroeconomic variables of inflation, interest rate and exchange rate are hypothesised to have a negative relationship with housing finance and housing. Meaning that increase inflation, interest rate and exchange rate will negatively affect housing finance and housing. Corruption is hypothesised to negatively affect housing finance and housing.

3.3 DATA COLLECTION AND INSTRUMENT

To answer the research questions, primary data was also collected pertaining to the data that are specific to the housing sector for qualitative analysis to answer the research questions and corroborate the findings in relation to the quantitative analysis. To answer the research questions, secondary data which refers to information gathered from across the macro economy regarding housing finance and the other difficulties that are being faced by the housing sector was collected. The World Bank's Development Indicators (WDI) and Governance Indicators were used in order to compile the secondary data (WGI). Data was collected for the period 1980–2020, which is a period of 41 years leading to 41 observations that might yield a satisfactory fit in time series regression. The term was defined as 1980–2020. This was to answer the research questions about the quantitative effect of finance on housing, the extent other macro and microeconomic factors affect housing affordability and availability and how does corruption impact housing.

Data used for the qualitative analysis was collected from interview agenda. This was to answer the research question on the qualitative effect of finance on housing. See the attached agenda in appendix. Primary data was collected using an interview agenda schedule. The open-ended interview schedule was used in a face-to-face interview. This enabled the researcher to solicit the opinions of the respondents, which consequently enhanced the testing of hypotheses. The responses to the questions came from people working in both the public and private sectors, and their perspectives served as the basis for the questions. During the course of the interviews,

the interviewees discussed their perspectives on the effectiveness of the policies and regulations, governance factors, private sector finance, housing finance models that were utilized, and other aspects.

3.4 POPULATION AND SAMPLING

Cooper and Schindler (2003) define population as a group on which the researcher will focus. Ngechu (2004) puts forward that a population is a set of people, services, elements, group of things, or households that are being investigated. The population of interest for this study consists of the number of stakeholders in the housing sector in both the private and public sector and the financial institutions.

To address sub-questions 1, 2 and 3, perception on the effect of housing finance, micro and macro-economic factors and corruption on housing, a sample size is drawn out of the population to represent the entire population for an interview about their opinions. The sample size for this study comprises 250 people of stakeholders in the housing sector in both the private and public sector and the financial institutions. Convenient sampling was used to choose the sample size. This is justified because the population size and complete characteristics are unknown and it allows for rapid data collection and is often the only practical option in situations where resources and time are limited (Taherdoost, 2016).

In the public sector, the senior and middle level management officers in the housing directorate were interviewed because of their roles in the housing sector. They make and implement housing public housing policies. 125 of the private sector housing practitioners were targeted for the interviews. 50 were estate brokers, 50 estate agents and 25 were mortgage workers. All of them had more than 5 years' experience in their various fields. They are the key players in the private housing sector. Purposive sampling was used to choose the sample across the different population characteristics. The reason is that the population is large and could not be

controlled and the purpose is to do qualitative analysis which is not affected by probability techniques (Palinkas et al., 2015).

3.5 REGRESSION ANALYSIS

The research aims to address three questions: what is the effect of housing finance on housing? To what extent macroeconomic and microeconomic factors impact housing? How does corruption affect housing? Each of the first sub question relates to the quantitative effect of these variables on housing. To address these sub-research questions, macro level time series regression analysis was used. To corroborate the findings of the macro level research and to answer the sub-research questions on perceptions and opinions, the viewpoints of industry experts, interview response analysis was employed using charts and cross-tabulations.

3.5.1 Macro Level Analysis

To answer sub-research questions 1.1, 2.1 and 3.1, the quantitative effect of housing finance on housing, the quantitative effect of micro and macroeconomic factors on housing the quantitative effect of corruption on housing, time series multiple regression analysis was employed. At the macro and micro level, econometrics technique was used to investigate the quantitative effect of finance on housing, the amount to which other macroeconomic factors influence housing affordability and availability, and to quantify how corruption affects housing. To begin, while employing Ordinary Least Squares (OLS), statistical assumptions regarding the accuracy of the model are made, and the estimation outcome is dependent on whether these assumptions hold. As a result, in econometrics, pre diagnostic testing has become an essential aspect of model specification. The following experiments were carried out: test for stationarity or unit root, the mean of the error term is zero, the variance of the error term is constant, the errors are normally distributed, the errors are independent of one another, the regressors are independent of one another, and the regressors are independent or not correlated (multi collinearity).

Before employing OLS estimating algorithms on time series, it is necessary to test for stationarity, unit root, or order of integration (Unger & Ferwerda, 2013). Using the Augmented Dicky Fuller (ADF) test, the variables were evaluated for unit root at various levels. The tests were carried out for constant, drift, and trend. The importance of data stationarity in time series analysis stems from the fact that the requirements of constant covariance, variance, and mean must be met in order for the estimated models and conditions to be accurate.

The first assumption requires that the average value (mean) of the constant term is zero. This assumption will never be violated if the regression equation contains a constant term as demonstrated in the model. If the errors have a nonzero mean, it will be absorbed by the constant and they would on average be zero. Though not a concern for time series models, the second assumption requires that the variance of the error term be constant that is the assumption of homoscedasticity. When this assumption breaks down, we have a problem of heteroscedasticity. It is mostly associated with cross sectional data. One can plot the residuals against the predicted values to get an indication of heteroscedasticity. Formal test was done using the White Test and the Breusch–Pagan test in SPSS. Some of the ways of preventing or solving the problem of heteroscedasticity is to log the data, apply weighted least squares (WLS) or use heteroscedasticity consistent standard errors (HCSE).

This assumption is required in order to conduct hypothesis testing, particularly if the sample size is small. For sample sizes that are sufficiently large, violation of the normality assumption is virtually inconsequential. Van Voorhis and Morgan (2007) argue that using six or more predictors the absolute minimum of participants should be ten though it is better to go for thirty participants per variable. The model is having eight predictors and forty-one observations (1980 – 2020). Based on the central limit theorem, the test statistic will asymptotically follow

the appropriate distribution even in the absence of error normality. In smaller samples it is important to meet this assumption for the p-values of the t-test to be valid. To detect non-normal errors one can estimate the values of skewness and kurtosis. These values can be obtained from the descriptive statistics. The Bera-Jarque Test for non-normal errors was done using SPSS.

It is assumed that the covariance of the errors over time is zero. If the errors are not uncorrelated with one another, it would be stated that they are autocorrelated or that they are serially correlated. It is caused by inertia, data manipulation, and omission of important variable, misspecification of the functional form and systematic error of measurement. The consequences of ignoring autocorrelation when it is present are similar to those of ignoring heteroscedasticity. A formal test for detecting autocorrelation is the Breusch-Godfrey Test and the Durbin-Watson Test. A typical way to overcome autocorrelation in the data is to include lagged values of the explanatory variables or of the dependent variable. GLS and the Newey-West methods can also be used to correct for auto or serial correlation.

3.5.1.1 Regression Analysis

SPSS statistical software was used to electronically do the estimation. Even with the most complicated data sets, SPSS offers a more flexible, customizable way to obtain incredibly fine detail. The researcher now has more time to focus on what they do best: identifying trends, creating predictive models, and coming to wise decisions. Based on the theoretical and empirical literature reviewed, the model adopted is an expanded version of the model frequently used in estimating the determinants of housing (Kleshcheva, 2021; Peppercorn & Taffin, 2013).

$$Hs_t = \beta_0 + \beta_1 Hf_t + \beta_2 R_t + \beta_3 In_t + \beta_4 GDP_t + \beta_5 Ex_t + \beta_6 PS_t + \beta_7 UP_t + \beta_8 C_t + \beta_9 RP_t + e_t \quad \ldots.(i)$$

B_0 is the intercept, it tells us the stock of housing when all the independent variables are zero. β_1 to β_9 are the slope parameters. They measure the effect on the independents on the dependent variable (housing). Where:

- Hs_t is housing stock in year t
- β_0 is the intercept, the predicted housing stock when all the other regressors are zero
- β_1 to β_9 are the parameter estimates of the effects of each of the regressors on the regressand
- Hf_t is housing finance in year t
- R_t is the interest rate.
- In_t is the rate of inflation in year t
- GDP_t economic growth in year t
- Ex_t exchange rate in year t
- PS_t is political stability in year t
- UP_t is urban population in year t
- C_t is corruption rank in year t
- RP_t is refugee population
- e_t is the regression residuals or error terms in year t

Table 3.1: Definition of Variables

Variable	Definition	Unit of Measurement
Housing stock	Proxied by urban population access to electricity	Percentage of population with access to electricity
Housing finance	Proxied by government subsidies and transfer as a percentage of government expenditure, should be positive	Percentage of government expenditure as subsidies and transfer
Interest rate	Cost of borrowing could be positive or negative	Annual percentage rat
GDP	Gross domestic product, should be positive	Annual growth rate
Exchange rate	Malawian Kwacha exchange rate with the US Dollar should be negative	Annual exchange rate, US Dollars for Malawian Kwacha
Political stability	Destabilisation of government should be negative	Global rank. -1.0 lowest and 1.0 highest
Urban Population	Population of urban areas could be negative or positive	Number of people living in urban areas
Corruption	Extent to which public power is used for private gains could be positive or negative	Globa percentage rank
Refugee population	Population of people from other countries coming to seek refuge in Malawi could be positive or negative	Number of refugees

Given that as at the time of the study, there was no access to data on housing stock for the

period under review, urban population access to electricity was used as a proxy. Using access to electricity as a proxy for housing stock is appropriate because it indicates the presence of essential infrastructure and a certain level of housing quality, reflecting a fundamental aspect of modern habitation, and living standards. Data for this is also completely available for the period under reviewed.

3.5.2 Industry Level Analysis

In order to answer sub-research questions 1.2, 2.2 and 3.2, perception and opinions on housing finance and housing, micro and macroeconomic factors on housing and the perception of corruption on housing, industry level analysis was done through primary data collection from interviews with key industry stakeholders. The analysis of the primary data was carried out to ensure both completeness and accuracy. The data was organised, coded in SPSS, and then subjected to a thematic analysis.

In addition, in order to give the results of the analysis of the quantitative data more significance and to give the results of the analysis of the qualitative data more meaning, the patterns in the qualitative data were outlined using content and logical analysis. The findings were summarised and displayed in tables, graphs, and pie charts following the completion of the data analysis and computation processes. The findings of the industry level qualitative analysis complemented that of the macro level quantitative analysis.

3.6 RESEARCH LIMITATION

The fact that this study only used a sample size of 250 people to represent the entire housing market in Malawi is by far its most significant limitation. There is not enough information contained in the database of housing practitioners in Malawi. Because of this, compiling a sample consisting of a large number of housing industry representatives was a difficult task. In

addition, the researcher was forced to rely on a large number of proxies because neither Malawi's national statistics nor the World Bank keep data on the majority of the variables that were investigated. Many people were not ready for face-to-face meetings, despite the fact that the limits of Covid-19 were being lifted as primary data was being collected.

3.7 ETHICAL CONSIDERATIONS

Using Malawi as a case study, the overall purpose of the study is to investigate the impact that financing has on housing in SSA countries like Malawi. There were barriers that needed to be overcome in order to accomplish this goal. One of the problems is that there are no data available for housing stock, housing finance, or housing expenditures. For the estimation, suitable proxies were utilised so that the relationship could be empirically investigated. Due to time and resource constraints, only 250 of the thousands of housing practitioners were able to participate in the interview process. This was another limitation of the study. There is a possibility that the sample is not representative.

Every research work is challenged by adherence to ethics and reliability of the data collected (Anso, 2014). In this research all ethical requirements were observed and followed throughout the entire research process. Before collecting data, permission was sought were the participants were asked to participate voluntarily and given the chance to withdraw from participation if they chose to do so. Additionally, participants were made to sign the consent form before they participated in this study. All participants were assured that anonymity and confidentiality of the responses were guaranteed. Participants were not expected to write their names on the interview agenda and data were coded to ensure anonymity and confidentiality throughout the research process.

3.8 CHAPTER SUMMARY

The chapter described the study methods used to analyse macro and industry level data. The study adopts a hybrid research approach, which distinguishes it from previous investigations. To evaluate the effects of macroeconomic variables that influence housing supply and affordability, time series regression analysis was proposed. Furthermore, qualitative study of industry-level data was suggested. This was done to confirm the macro level conclusion and to investigate the perspectives of industry specialists. The following chapter includes the research findings as well as the interpretation of the findings.

For the purpose of this study, ethical requirements as set out by the University of Cape Town were taken into account. The policy provides a statement of principles and procedures for the conduct of research in cases where human participants are involved. This document was followed to ensure that the study did not contravene the behavioural norms established by the University. Some of the ethical issues which were considered included respecting the privacy of participants by making them aware of their right not to participate in the research at any time of the data collection process, allowing them to determine when they would participate in the data collection process.

CHAPTER 4: ESTIMATION AND INTERPRETATION OF RESULTS

4.1 INTRODUCTION

This chapter contains the preliminary analysis and estimations and analyses of results. It is divided into two sections, quantitative analysis of World Bank secondary data on Malawi using OLS Linear Regression and qualitative analysis of primary data collected from survey interviews with public and private sectors housing practitioners. The preliminary analysis in the quantitative section includes descriptive statistics, the Jarque Bera Normality Test and the Augmented Dicky Fuller Test for Stationarity. In the qualitative analysis, the preliminary includes checking data for correctness. Response rate was also checked for data adequacy.

4.2 MACRO LEVEL ANALYSIS

The study employed quantitative analysis (regression) to assess the quantitative impact of finance and other macroeconomic factors on housing, such as corruption. To accomplish this, preliminary tests are run prior to the regression analysis. Before performing blind regression analysis, ensure that the assumptions underlying them are correct. Furthermore, it provides some initial impressions of the data.

4.2.1 Preliminary Analysis

I. Descriptive Statistics

Table 4.1: Descriptive Statistics

Variable	Mean	Std. Deviation	N	Min.	Max.
Housing Stock	36.5690	6.79334	41	22.45	57.50
Annual Inflation Rate	18.0640	14.40786	41	7.41	83.17
Annual GDP Growth Rate	3.3706	5.00330	41	-11.59	10.77
US Dollars Exchange Rate	.2161	.33547	41	0.001	1.23
Urban Population	1701522.59	793983.939	41	565000	3,333,777
Political Stability Estimate	-.0656	.12701	41	-0.45	0.12
Corruption Rank	32.9535	6.31267	41	18.18	47.42
Interest Rate	9.7730	10.63290	41	39.45	-29.22
Refugee Population	263.2593	157.87409	41	5	450
Housing Finance	28.1310	3.32278	41	18.69	41.63

Source: Author's computation using World Bank Data

The summary statistics in Table 4.1 above provide the observations for a 41-year period (1980 to 2020). The mean, standard deviation, minimum, and maximum annual values are also included. The minimum and maximum housing stock proxied by the percentage of the urban population with access to electricity are 22.45% and 57.50, respectively. Over the period, the mean was 36.56%. Access to electricity and good housing infrastructure has fluctuated over the years, with most years less than half of the urban population, as demonstrated by a mean that is less than 50%. The minimum and maximum real interest rates are -29.22 and 39.45, respectively. For inflation, the annual minimum and maximum inflation rates are 7.41% and 83.17%, respectively. The mean is 18.06%. Annual GDP growth has a minimum of -11.59%, a maximum of 10.77%, and a mean of 3.37%. The exchange rate against the US Dollar has a minimum of 0.001 USD per Malawian Kwacha and a maximum of 1.23 USD per Malawian Kwacha, with a mean of 0.2161. Housing finance has a minimum of 18.69%, maximum of 41.6%, and a mean of 28. 13%. Real interest rates, inflation, GDP, exchange rates, and housing finance deteriorated in the late 1980s and early 1990s due to bad governance and economic instability. The minimum urban population is 565,000 people, and the maximum is 3,333,777 people, with a mean of 1,701,5222. The urban population is increasing disproportionately to housing infrastructure. The minimum rank of political instability is -0.45, the maximum is 0.12, and the mean is -.0.06. The late 1980s and 1990s were the worst. The maximum corruption rank is 47.42%, the minimum is 18.18%, and the mean is 32.95%. Corruption ranks have not been stable, and one cannot point out which periods were worse than the others. The maximum number of refugees is 450, the minimum is 5, and the mean is 263.25. The refugee population drastically increased in the 2000s due to the war in Rwanda and other nearby countries. All the variables have higher standard deviations, resulting in a relatively high spread or variability over the years.

II. Normally Distributed Errors Test

Table 4.2: Jaque Bear Test

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Unstandardized Residual	41	-9.93317	15.10563	.0000000	4.96868636	-1.23	.369	.46	.724
Valid N (listwise)	41								

Source: SPSS Output

Given that n = 41, S = .8826 and K = 1.155:

$$\text{JB} = \frac{41}{6}\left(-1.23^2 + \frac{1}{4}(0.46 - 3^2)\right) = 0.683$$

The decision rule is that if the JB is far from zero, the data is not normally distributed, but if it is close to zero, it is. We conclude that the errors are normally distributed because 0.6 is close to zero. This implies that our assumptions are correct, and model inference (confidence intervals, model predictions) should be correct as well.

III. Stationarity Test

The normal guide of 5% was used in all the three cases with regards to the test. It is shown in the Appendix 11 that the ADF test statistics is higher than the critical values at either 1% or 5% for each of the variable. The decision rule is that, if the ADF test statistic is higher than the critical value (especially at 1% or at most 5%) we reject H_O (nonstationary) and conclude that the variable does not have unit root or is stationery or integrated at order zero. As shown, all the variables are stationery or integrated at order zero.

4.2.2 Regression Analyses

Given that the variables are stationary at level (order zero) or integrated at order zero and the errors normally distributed, below is the SPSS output of the multiple regression analysis of equation (1) at levels:

Table 4.3: Regression Output

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	23.172	15.863		1.461	.154
	Annual Inflation Rate	-.191	.096	-.406	-1.992	.005
	Annual GDP Growth Rate	.079	.200	.058	.394	.006
	US Dollars Exchange Rate	3.684	5.666	.182	.650	.020
	Urban Population	.03986	.000	.457	1.591	.002
	Corruption Rank	-.122	.178	-.114	-.685	.028
	Interest Rate	-.289	.109	-.453	-2.655	.012
	Housing Finance	.046	.296	.316	2.180	.007

a. Dependent Variable: Housing Stock

Source: SPSS output of author's construction using WB data

Those variables not supported by theory or empirical literature were excluded. The principle also explained that if one regression model explains the relationship, there is no need for multiple models. Hence only one model which explains the relationship is used. Housing stock is measured in percentage given the proxy which is percentage of urban population with access to electricity is in percentage. All the other variables are measured in the units as in the definition of variables and in their natural form.

The R^2 which measures how well the model changes in the dependent variable, which is housing, is 0.682 and significant at 5% (Appendix 3). This means that the model explains 68.2% of the changes in housing percentage which is a considerable strong level of prediction. Since the F statistics is significant at 5% with a value of 0.023 (Appendix 12), the R^2 is significant. That is the model significantly explains changes in the dependent variable. Political instability estimate and refugee population are dropped from the model because they are not significant since their significant or P-values are greater than 0.05 (0.946 and 0.212 respectively). This might be the case that Malawi has been relatively stable and that has not affected housing. Also, Malawi has not been hosting refugees and might be the reason why it is not significant. Inflation, GDP, exchange rate, urban population, corruption, interest rate and housing finance

significantly explain changes in affordable quality housing.

The estimate of β_0 is 23.72. It is the intercept, and it measures the percentage of housing when all the other independent variables are zero or held constant. It tells us that housing stock will be 23.72% when all the other variables are zero. – 0.19 is the estimate of β_1, the parameter estimates of the effect of inflation on housing and significant at 5%. It shows a negative relationship between inflation and housing. It measures that a 1% increase in inflation will decrease housing stock by 19%. The inflation-housing price hypothesis posits that high inflation rates pose risk in housing investment because of risk and predictability problems with changes in the real value of money which it poses. The result of the model estimate conforms to this hypothesis that inflation negatively affects housing financing and housing. This is result is similar to that of Doling et al. (2017). It also answers the question that macroeconomic stability is needed for housing.

The estimate of β_2 is .079, the parameter estimates of the effect of GDP growth rate on housing and significant at 5%. It shows a positive relationship between GDP growth rate and housing. It measures that a 1% increase in GDP growth rate will increase housing stock by 7.9%. The positive relationship expressed here between GDP growth and housing stock agrees with the literature on the GDP-growth hypotheses which states that GDP growth positively stimulate housing finance and housing availability. This was also the case observed by Rahman (2008) in Bangladesh. GDP growth is mostly viewed as an indication of good macroeconomic conditions and also supports the question that good macroeconomic condition is needed for affordable housing.

The estimate of β_3 is 3.68, the parameter estimates of the effect of exchange rate on housing stock and significant at 5%. It shows a positive relationship between exchange rate and housing

stock. It measures that a 1-unit increase in Malawian Kwacha against the US Dollars, housing stock will increase by 3.68%. Most of the materials use in housing construction in SSA countries including Malawi are imported. A depreciation in Kwacha will normally result to high prices on building materials and vice versa. The positive result above agrees with this hypothesis. Mitlin (2008) also observed similar relationship. Exchange rate is another indication of macroeconomic stability and also supports the question that good macroeconomic condition is needed for affordable housing.

The estimate of β_4 is .003986, the parameter estimates of the effect of urban population on housing stock and significant at 5%. It shows a positive relationship between urban population and housing stock. It measures that an increase in urban population by 1 person will increase housing by 0.3986%. This result does not agree with the population-housing hypothesis which claims that increase in population does have a negative result on housing affordability, quality, and availability. This might be the case as people increase in the urban areas, they construct more houses for their living as in Grubbauer (2020).

The estimate of $\beta_5$is -0.122 the parameter estimates of the effect of corruption rank on housing stock and significant at 5%. It shows a negative relationship between corruption rank and housing stock. It measures that a 1% increase in corruption rank will decrease housing by 12.2%. The two hypotheses of corruption examined in the literature are that corruption "greases the wheel" and "sands the wheel". That is, corruption either supports housing stock availability or reduces it, that is negative and positive effects. The result of the estimate shows a negative relationship. That is corruption "sands the wheel". It is the same in the findings of Bah et al. (2018). This answers the question about the effect of corruption on housing.

The estimate of β_6 is -0.289 the parameter estimates of the effect of interest rate on housing and

is significant at 5%. It shows a negative relationship between interest rate and housing . It measures that a 1% increase in interest rate will decrease housing by 28.9%. This is in line with the theory of interest rate and housing discussed in the literature. Higher interest encourages savings and reduces investment in housing. It also increases the cost of borrowing to invest in housing. This resulted in the hypotheses that interest rate and housing are negative as thus confirmed by the result. Renaud (2016) observed similar relationship in his study 'housing and financial sector development in developing countries'. Interest rate which is the cost of investment or borrowing is a good measure of finance. This helps to answer the question of the effect of finance on housing. Low interest rate indicates finance availability. The analysis shows that availability of finance leads to more availability off affordable housing.

The estimate of β_7 is 0.046 the parameter estimates of the effect of housing finance on housing stock. It shows a positive relationship between housing finance and housing stock. It measures that a 1 percent of government expenditure as subsidies and transfer increase in housing finance will increase housing by 4.6%. This result satisfies the hypothesis that increase in housing finance leads to increase in affordable quality housing stock. it agrees with the findings of Adediran and Mohd Ali (2021) that housing finance positively affects housing stock. This answer the question that housing finance is positively related to housing.

4.3 STAKEHOLDER ANALYSIS

4.3.1 Response Rate

The administered interview agenda schedules were done with 125 public sector housing practitioners and 125 private sector housing practitioners. All the interviewees showed up and participated thus accounting for 100% response rate. Thus, the study did not suffer a non-response bias. Therefore, this implies that the respondents understood the value of this study and also because of the clear and easy to understand interviews.

4.3.2 Public and Private Sector Response Analysis

Below is a thematic analysis of the responses of public sector personnel:

Effectiveness of Government Housing Policies and Programs

The results of interviews with public and private sector interviewees about government housing policies were mixed. 8 public sector interviewees disagree and strongly disagree that housing policy is ineffective in solving the country's problem. 15 remained neutral, while 102 agree and strongly agree that government housing policy has been ineffective. 12 private sector interviewees disagree and strongly disagree that housing policy is ineffective in solving the country's problem. 10 people remained neutral, while 103 agree and strongly agree that government housing policy has been ineffective in addressing the housing crisis.

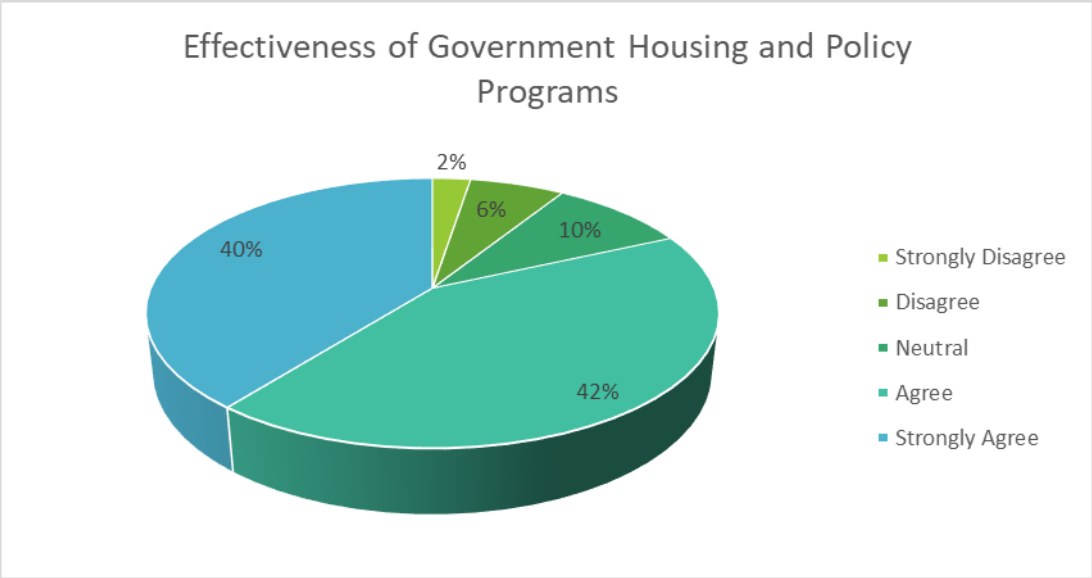
Table 4.4: Government Policy Response

		Sector		
		Public Sector Count	Private Sector Count	Total Count
Policy	Strongly Disagree	2	3	5
	Disagree	6	9	15
	Neutral	15	10	25
	Agree	79	26	105
	Strongly Agree	23	77	100

Source: Author's construction using interview response

According to the data presented in Table 5, which can be found above, out of a total of 250 interviewees (125 from the public sector and 125 from the private sector), a total of 20 interviewees strongly disagree and disagree with the notion that housing policies and programs implemented by the government were successful in providing adequate and affordable housing. 25 respondents in total had neutral responses. The total number of people who agree and strongly agree is 205. This data is summarized and analysed in the form of percentages in the pie chart that can be found in Figure 1 below.

Figure 4.1: Pie Chart of Effectiveness of Government Housing and Policy Programs



Source: Author's construction using interview data

In total of both the public and private sector interviewees, 82% which is a combination of the 40% who strongly agree and 42% who agree, pointed out that government policies and programs implemented are not effective in providing quality affordable housing. They noted that government housing cooperation has failed to provide the necessary policy and finance for housing in the country. In total 8% disagree and strongly disagree whilst 10% remained neutral. Those who agree and strongly agree that government housing policies have been ineffective are those who have been in service for over 10 years. In their experience, government policies have not been effective. Those who disagree are most less than 5 years in service and had mostly seen some improvement in their few years of service. The new ones in the industry who are less than one year mostly responded neutral because they could not tell.

They posited that the government housing intervention programs have been low-cost house construction and mortgage loans which all failed to provide adequate housing. They claimed that poor management of low-cost house construction and mortgage loans was to blame for the failures. This result is in line with the hypothesis in the literature reviewed that government housing policies and programs have been a failure to salvage the housing challenge. The

Ministry of Land, Housing, and Urban Development, as well as Malawi Housing Cooperation, have been the primary actors throughout this process.

Macro-Economic Factors and Housing Investment Finance:

During the interview, the topic of whether or not the influence of macroeconomic factors on housing was brought up for discussion. During the course of the interviews, the three major macroeconomic factors that were discussed were inflation, interest rate, and government subsidy. The findings of interviews conducted with interviewees from both the public and private sectors produced the same results with regard to the fact that macroeconomic variables such as inflation, interest rate, and government subsidy all affect housing finance, availability of and affordability of house. The results of the participants are presented in Table 6, which can be found below.

Table 4.5: Macroeconomic Factors Response

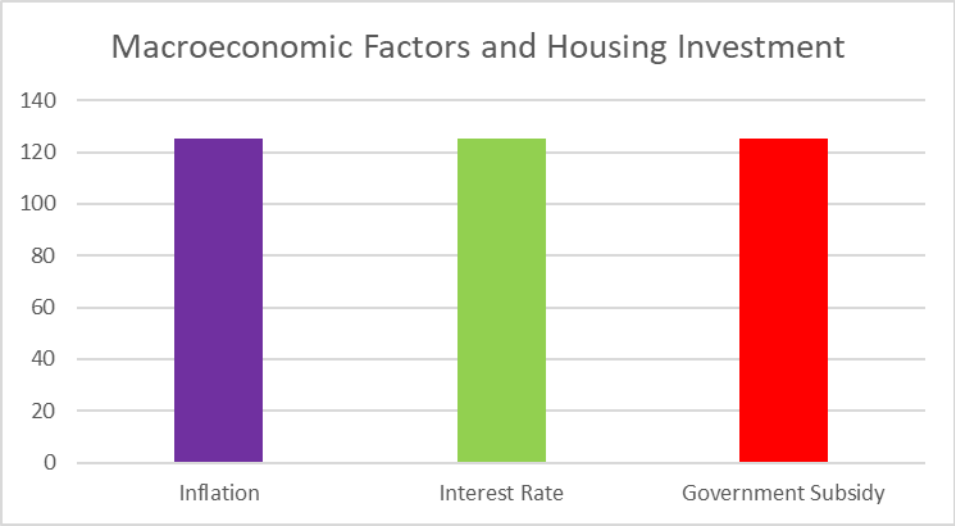
		Sector		
		Public Sector Count	Private Sector Count	Total Count
Interest Rate	Strongly Disagree	0	0	0
	Disagree	0	0	0
	Neutral	0	0	0
	Agree	0	0	0
	Strongly Agree	125	125	250
Inflation	Strongly Disagree	0	0	0
	Disagree	0	0	0
	Neutral	0	0	0
	Agree	0	0	0
	Strongly Agree	125	125	250
Subsidy	Strongly Disagree	0	0	0
	Disagree	0	0	0
	Neutral	0	0	0
	Agree	0	0	0
	Strongly Agree	125	125	250

Source: Author's construction using interview response

The responses from housing practitioners working in both the public and private sectors are

displayed in the table located above (Table 6). It was based on whether macroeconomic variables like inflation, interest rates, and subsidies affect housing, and all of the 250 respondents combined strongly agree that inflation, interest rates, and subsidies do affect housing finance. Figure 2 below summarises Table 6 in bar chart.

Figure 4.2: Macroeconomic Factors and Housing Investment



Source: Author's construction using interview data

The respondent agreed 100% that inflation, interest rate and government subsidy affect housing finance and hence the price of affordable housing in the country. They noted that government should lower the interest rate, ensure stable rate of inflation, and provide more subsidy for housing. They argue that the housing market will likely slow down because rising inflation rates call for higher interest rates, which in turn call for higher tax rates. Despite this, there is no sign that housing prices will fall anytime soon because demand continues to outweigh supply. They pointed out that one of the causes of difficulties with housing finance, as well as housing availability and affordability, is a reduction in housing subsidies or demand that is not keeping pace with growth.

The findings of this study lend credence to a number of the hypotheses advanced. According to the Interest Rate and Housing Theory, interest rates are the primary factor that determine the

level of consumer demand for housing. It made the assumption that increased interest rates would lead to increased prices. In addition to this, it lends support to the Inflation and Housing Price Hypothesis, which states that inflation has an effect on housing prices, which in turn increases the risk involved in housing finance.

Corruption and Housing

In order to address the question about corruption, both public and private housing sector officials were questioned about the impact that corruption has on the housing market. 26 of the respondents who worked in the public sector agreed that corruption has an effect on housing. Ninety-nine percent of respondents from the public sector were in agreement that corruption has an effect on housing. The responses from those in the private sector as a (125) whole indicate that they are unanimously of the opinion that corruption has an effect on housing. The responses given by the respondents during the interviews are compiled in Table 7, which can be found below.

Table 4.6: Corruption Response

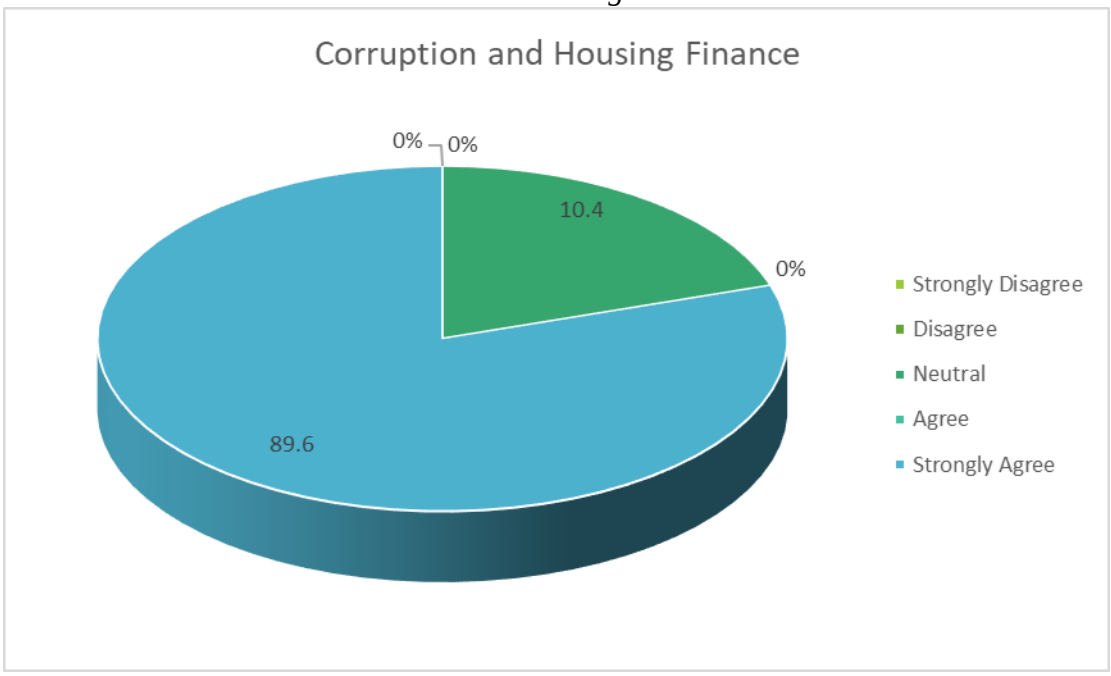
		Corruption				
		Strongly Disagree Count	Disagree Count	Neutral Count	Agree Count	Strongly Agree Count
Sector	Public Sector	0	0	0	26	99
	Private Sector	0	0	0	0	125

Source: Author's construction of interview responses using SPSS

The interviewees collectively agreed that corruption in the public sector affect housing finance and housing availability and affordability in the country. They pointed out that bidding for government housing contracts is full of fraud and bribery resulting in inflated cost and substandard work. They noted that biddings are not competitive, transparent and fair. From the table above, 26 out of the 125 public officers interviewed agreed that corruptions negatively affect housing finance and hence housing availability. 96 strongly agree. 125 of all the private

sector officers strongly agree that corruption negatively affect housing finance and availability. Below is a pie chart of the summary statistics.

Figure 4.3 Public Governance Factors and Housing Investment:



Source: Author's construction using interview data

The pie chart above summarises the interview responses of both public and private sectors. 26 of the total 250 interviewees agree that corruption affect housing finance and housing. 154 in total strongly agree. This corresponds to 10.4% agree in total and 89.6% strongly agree in total. 80% of the interviewees agreed that public factors negatively affect housing finance. The public sector interviewees pointed out that tenders for housing projects do not follow due process. They are not competitive, transparent and are marred by bribery and corruption. They also noted that illicit flow of funds also affects housing finance. The private sector interviewees also pointed out that bidding for government housing contracts is full of fraud and bribery resulting in inflated cost and substandard work. They noted that biddings are not competitive, transparent and fair.

This finding is consistent with the hypothesis that Corruption Sands-the Wheels. According to

the Sand-the-Wheels Hypotheses, there is a negative relationship between levels of corruption and levels of efficiency, such that an increase in corruption leads to a decline in efficiency in an institutional setting that is already efficient. This results in an increase in the cost of transactions and, consequently, higher housing costs.

How can a model for low-cost affordable housing be adopted for housing finance to meet the demand for urban growth in a low/middle income economy, in comparison to advanced markets?

The interviewees responded that government should design effective housing policies to ensure good implementation. They stated that government should provide the enabling environment through very good tax regimes and fair regulations that would support private sector investment. They said that government should provide subsidy, gives banks liquidity to provide housing loans, reduce tax on building materials, control inflation and exchange rate. These they say is the most appropriate model to ensure quality affordable housing.

Housing Finance Practices and Policies:

What are the housing finance practices and models that you use in line with the policy framework that already exist?

Everyone who was interviewed agreed that the government does not provide much in the way of housing finance. They stated that the provision of loans, the buying and selling of homes, and the construction and development of properties are the means by which they finance housing investment. They explained that their strategy for investing in real estate is driven primarily by a desire to maximize profits and that they are able to serve all subsets of the market. They emphasized that they work for both the government and the general public. They have come to an agreement that they will develop properties for people who are politically vulnerable as well as retirees whose gratuities are sufficient enough to afford housing. They offer loans for

short, medium, and long terms to help people finance their homes.

Models for low-cost affordable housing:

How can a model for low-cost affordable housing be adopted for housing finance to meet the demand for urban growth in a low/middle income economy, in comparison to advanced markets?

One hundred percent of the people who were interviewed believed that the domestic private sector, which includes commercial banks, national banks, and developers, ought to play a role in the expansion of the low-cost housing market in urban areas. They proposed that the government should foster an environment conducive to their growth and, as a result, provide housing that is both of high quality and affordable cost. The general consensus was that the government should provide the necessary resources and a policy guide in order to support the banks and property developers. An external foreign investor needs to come and meet the enabling environment, which consists of a very good tax regime, flexible regulations in the industry, and development financial institutions. The building code, the permit, and any other protocols ought to be understandable, open, and efficient. According to the interviewees, the vast majority of building materials are imported, making them susceptible to fluctuations in exchange rate. They pleaded with the government to provide the required amount of foreign currency in order to facilitate an increase in the building and development of residential properties.

CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the fourth chapter, the study's findings and results were presented. This chapter contains the study's conclusions and recommendations. In addition, the chapter discusses the limitations of the research procedure. Finally, the chapter concludes with crucial recommendations and future research directions.

5.2 DISCUSSION

The research questions the study posed have been answered. This study examined how mortgage lending impacted the number of homes available across the country. The OLS multiple linear regression analysis was used to examine the effects of housing finance along with other macroeconomic and microeconomic factors. Qualitative interview responses were analysed in order to further investigate the same questions from the perspectives and viewpoints of housing professionals working in both the public and private sectors. To ensure the precision and dependability of the regression estimate, each of the assumptions used in the OLS multiple regression analysis was carefully reviewed.

The parameter estimates for this relationship imply that there may be a correlation between housing finance and housing. The outcomes give credence to this correlation. It has been demonstrated that increased housing financing will increase the supply of high-calibre, affordable housing. Support for this came from qualitative studies that examined the opinions of professionals working in the public and private sectors. The housing-housing finance hypothesis, which holds that housing finance stimulates housing, is supported by this study. This study concurs with a related study that used focus group discussions and was conducted

in Nigeria. In other words, it supports Adediran and Mohd Ali's conclusions that housing finance does have a positive effect on the housing (Adediran & Mohd Ali, 2021). Adediran and Mohd Ali (2021), in contrast to the model used in this study and from which inferences could be made, used qualitative analysis.

There appears to be an inverse relationship between the interest rates and the quantity of housing, as indicated by the findings of studies that are both quantitative and qualitative in nature. This finding lends credence to the interest rate and housing market theory that has been the focus of debate in the academic world. People are encouraged to increase the amount of money they save and are dissuaded from investing in real estate when interest rates rise. As a direct result of this, the interest rates and fees associated with obtaining loans to fund real estate investments will go up. It was hypothesized that there would be a negative relationship between interest rates and housing prices; this hypothesis was confirmed when there was found to be such a relationship. (Renaud, 2016) found a connection between the expansion of the banking sector in developing nations and the expansion of the housing market in those countries. He pointed out that lower interest rates result in lower housing finance costs, which in turn result in lower housing costs.

The quantitative study came to the conclusion that there is an inverse relationship between the number of homes available in a country and the perceived level of corruption that exists in that country. Deduction was used throughout the course of the thematic analysis to carry out the qualitative analysis. Corruption "sands the wheel" as well as "greases the wheel," according to the terminology that was used in the two hypotheses that were presented in the literature review. To put it another way, unethical business practices have the potential to either positively or negatively affect housing that is currently available. The findings of the estimation point to a detrimentally causal relationship. This is not a good thing. Corruption is the process of

smoothing out the wheel. The findings that were discovered by Bah et al (2018).

According to the findings of the research, exchange rates and housing are linked. In countries of the Southern African Development Community (SSA), such as Malawi, the vast majority of building materials are imported. When the Kwacha becomes less valuable, construction prices go up, and vice versa. The findings of this experiment, which were positive, lend credence to the aforementioned theory. The positive outcome described above lends credence to this concept. A similar correlation was discovered by Mitlin (2008).

The findings of the regression analysis suggest that there is a significant inverse relationship between inflation and housing. This conclusion can be drawn from the fact that there is a negative correlation between the two. It was discovered that there is a connection between the two. This was demonstrated by the impressions and perspectives that interviewees had of housing practitioners working in both the public and private sectors of the housing industry. When there is a significant amount of volatility in the value of money, real estate investments are said to be put in jeopardy, in accordance with the inflation-housing price hypothesis, the inflation-housing price hypothesis. The result of the model suggests that inflation has a negative impact, both on the availability of housing and on the ability to finance it, which lends credence to the contention that inflation plays a role in both of these aspects. Inflation has a negative impact on both the availability of housing and on the ability to finance it. This result is very similar to the one that Doling and his colleagues found (2017).

According to the data, there is a significant positive correlation between the annual growth rate of the GDP and the total number of housing units. Additionally, this correlation is quite strong. As a direct result of this, there will be a greater supply of homes available as the economy continues to show signs of improvement. An increase in GDP leads to an increase in the

availability and finance of housing, as was mentioned earlier, and this is supported by the literature on hypotheses relating to the relationship between GDP growth and economic growth, which suggests that an increase in GDP leads to an increase in overall economic growth. According to Rahman, the exact same thing happened in Bangladesh at the same time (2008).

Surprisingly, the findings of the regression analysis reveal a correlation between the number of people living in urban areas and the number of homes available to them. As the total number of people in the world increases, there will be an accompanying increase in the urban population. In contrast to the population-housing theory, which maintains that rising populations have a detrimental effect on the quality, cost, and availability of housing, there is evidence to support the contrary. It is possible that this will be the case as the populations of cities continue to grow and as new homes are built to meet the demand. It was also discovered that refugees had a positive correlation, but this one was not statistically significant.

This study, in contrast to those that came before it, focuses on Malawi, a small country in sub-Saharan Africa that has a limited supply of resources. Those earlier studies were conducted primarily in large, resource-rich countries. Despite the fact that some of the findings are the same, it has become clear that the situation in Malawi is one of a kind. In addition, in contrast to the majority of other studies, this study provides empirical estimates of the effects of housing finance as well as other macro- and microeconomic variables, including corruption, on housing. The research resulted in the development of a model that has the potential to be utilized for housing market forecasting in Malawi and other SSA countries with comparable economic dynamics.

5.3 CONCLUSIONS

According to the findings of the study, countries with limited resources such as Malawi need to prioritize the development of their financial markets before attempting to establish housing finance. This is in addition to maintaining macroeconomic stability. The parameter estimates of the effect of housing finance on housing show that housing finance and housing have a positive relationship. This indicates that housing finance and housing are related. This is proven by the fact that there is a positive dynamic between the two parties. This finding lends credence to the theory that increased housing finance leads to an increase in the supply of housing that is both more affordable and of higher quality. Specifically, this finding lends credence to the theory that increased housing finance leads to an increase in the supply of housing that is of higher quality It concurs with the findings that Adediran and Mohd Ali came to the conclusion that housing finance does have a positive effect on housing stock (Adediran & Mohd Ali, 2021). This was also supported by the qualitative analysis that was done on the responses that were received from practitioners in both the private and public sectors. It is therefore possible to draw the conclusion that housing finance has an effect on housing.

Both quantitative and qualitative analyses point to a negative connection between interest rates and housing. This connection has been shown to affect housing negatively. As a result, it is possible to arrive at the conclusion that the interest rate also plays a role in determining the availability and price of housing. This is because of the previous sentence. The interest rate and housing theory that has been discussed in the research that has been compiled up to this point is consistent with this finding, which shows that this line of thinking is correct. People have a tendency to increase the amount of money they save and decrease the amount of money they invest in real estate when interest rates are higher. In addition to this, it makes it more difficult and expensive to borrow money in order to invest in real estate. The findings, as a consequence,

lend credence to the hypotheses that a deteriorating relationship exists between rising interest rates and the housing market. This is because the findings show that rising interest rates are negatively affecting the housing market. Renaud (2016) discovered a correlation between the growth of the housing market and the growth of the banking sector in underdeveloped countries.

The price of housing as well as its availability are both made more difficult by corrupt practices. The quantitative research indicates that there is a connection, albeit an inverse one, between the amount of corruption that exists and the number of homes that are available. The qualitative investigation was carried out in the exact same way as the quantitative investigation. Corruption is said to "grease the wheel" and "sand the wheel" according to the two hypotheses that were investigated in the relevant research. In other words, the availability of housing may either increase as a result of corrupt practices or decrease as a result of corrupt practices, resulting in both negative and positive consequences. The results of the estimate indicate that there is a correlation that is in a negative direction. Corruption is referred to as "sanding the wheel." The results obtained by Bah et al (2018).

The exchange rate has an effect on not only the number of homes that are available but also their prices. According to the results of the study, there appears to be a beneficial relationship between the rate of currency exchange and the available housing. The vast majority of the components that go into the building of residential structures in sub-Saharan African nations like Malawi are brought in from other countries. Prices for building materials go up when the Kwacha weakens against other currencies, and they go down when the Kwacha strengthens against other currencies. The positive outcome described above lends credence to this concept. A similar correlation was discovered by Mitlin (2008).

Inflation has a chilling effect on the market for residential real estate. The results of the

regression analysis indicate that there is a significant inverse connection between inflation and housing. This connection was found to exist. The impressions and opinions of housing practitioners who worked in both the public and private sectors, who were interviewed, provided support for this finding. The inflation-housing price hypothesis states that high inflation rates put home investment at risk due to the risks associated with changes in the actual worth of money as well as the predictability issues associated with these changes. In other words, high inflation rates put home investment at risk. The conclusion reached by the model lends credence to the idea that inflation has a debilitating effect, both on housing financing and housing. This result is comparable to the one found by Doling et al (2017).

The availability of housing as well as its cost-effectiveness are both improved when the economy is in good shape. The parameter estimates of the effect of GDP growth rate on housing stock show that GDP growth rate and housing have a significant positive connection. This connection is evidenced by the positive correlation between the two variables. This connection is demonstrated by the fact that the number of housing units available has a positive correlation with the rate of expansion of the GDP. The expansion of the economy will, as a direct consequence of this, follow directly behind an increase in accessibility to housing. That there is a positive association between GDP growth and housing, that this association has been stated here, and that this association is consistent with the literature on GDP-growth hypotheses, which claims that GDP growth stimulates housing finance and availability, that there is a positive association between GDP growth and housing, and that this association has been stated here. Rahman (2008) claims that the same thing occurred in Bangladesh at the same time.

As a result, there is a greater demand for housing. A surprising and favourable connection between urban population and housing emerges as a result of conducting the regression analysis and looking at the results. This finding is unexpected and comes as a shock. This suggests that

the amount of people will increase in tandem with the expanding population as time goes on. This finding runs counter to the population-housing theory, which contends that a growing population has a negative impact on the availability, quality, and affordability of housing. Instead, this finding suggests that there is a positive correlation between population growth and housing availability. It is possible that this will occur as a result of the continued growth in the urban population and the construction of additional homes to accommodate this population. The refugee population was found to have a positive correlation as well, albeit a correlation that was not statistically significant.

The fact that the estimated model in the study provides empirical evidence on all of the hypotheses that were tested is the implication of this model in the study. It provides the deductions that could be used to analyse the housing and housing finance theories and hypothesis. This is done by providing the information. It offers a structure for analysing and forecasting housing trends. In addition to this, it offers the direction for the formulation and implementation of policy.

5.4 RECOMMENDATIONS

The government should consider increasing the amount of subsidy it provides to the housing sector, which is one of the suggestions that could help find a solution to the housing crisis. This could take the form of a reduction in taxes on building materials, direct cash transfers to landowners, or the construction of public housing by the government at a cost that is more affordable to the general population.

One more suggestion is to reduce the cost of borrowing money by lowering interest rates. This would make it easier for people who want to construct something to acquire financing for their projects. Additionally, it will reduce people's propensity to save money and increase their

interest in real estate investments. Adding to the list of significant actors is inflation.

In order to keep inflation under control and, as a result, reduce the risk of currency fluctuation, the government should ensure that its monetary policy is effective. Another policy that the government should pursue is maintaining the value of the currency exchange rate so that it is stable. This is because the value of the currency exchange rate influences the cost of building materials.

According to the findings of the regression analysis, the rate of economic growth is also a significant factor. The housing market is in a critical state, and the government needs to take action by enacting policies and programs that stimulate robust economic expansion. Because of this, the housing market will have access to the necessary liquidity that it requires. This is something that is lacking at the moment. This might involve a higher overall level of subsidy, in addition to more stringent measures to combat corruption.

5.5 LIMITATIONS OF THE STUDY

One of the things that hindered the usefulness of the study was the absence of data concerning housing, housing finance, or housing expenditure. This was one of the things that limited the study's usefulness. It was necessary to use appropriate proxies in order to perform the estimation so that the relationship could be empirically investigated. In spite of the fact that there are thousands of housing practitioners, only 250 of them were able to take part in the interview process because of time and resource constraints. Another limitation of the study was that this occurred. There is a chance that the sample is not representative of the larger population.

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APPENDIX

APPENDIX 1: QUESTIONNAIRE

QUESSIONAIRE: HOUSING FINANCE AND INVESTMENT IN SSA:

Public Market Players

MODE OF INTERVIEW (ADMINISTERED)

Personal interview carried out by researcher.

SAMPLING TARGET:

Public Market Players: municipal/council development sections: planning estate and building departments.

Hello,

My name is Joel and I am a final year Master's Degree Student in the Graduate School of Business at the University Of Cape Town (UCT), researching on Housing Finance and Investment in Sub Saharan Africa. My interest of study lies in the challenges of affordable low-cost housing finance in developing economies like Malawi. I have 3 sets of questions around issues of macro-economic factors that affect housing investment finance and public sector governance factors that influence housing investment finance market.

PRECURSOR TO OUR INTERVIEW

Would you be so kind to tell me about yourself, your role, and possibly how long have you been with this organisation?

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How effective are government housing policies and programs implementation to alleviate the

growing demand for affordable low-cost housing in urban areas?

1) What are the government programmes to alleviate the growing demand for affordable low-cost housing in urban areas?

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2) Who are the major players in these programmes?

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3) What have been the outcome of these intervention programmes?

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4) What have been the successes and challenges and what would you suggest as the way Forward?

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Macro-economic factors and housing investment finance:

5) With this housing type, what is the portion (%) you finance in comparison to the other types available (low-cost housing, medium cost housing and high-cost housing)

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6) In your opinion, how does average income corresponds to house prices and how has that

affected affordability of housing?

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7) Affordability seems to be a major challenge in the purchase of low-cost housing units in urban poor areas of the market, considering the rapid growths which urgently need government and private sector intervention. What do you think are some of the reasons that you see affect quicker housing delivery? From the view of.

i. (Internally within the organisation)

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ii. Individual home loans

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ii) Housing project construction loan?

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8) Do you think the informal sector in the urban poor areas can have access to self-build

low-cost housing finance schemes other than the normal bank loans (mortgage)? Tick below:

YES	NO
Extent of Access (tick) Low average High	

9) The success of affordable housing finance (housing micro finance) for the ordinary informal worker of urban areas seems to be gaining ground particularly in emerging markets. What are the types of funding initiatives to low-cost housing in our community's do we have or need to adopt? If not, what is the challenge?

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Public Governance Factors:

How does public corrupt practices flow of funding affect the housing finance market and vulnerable communities?

10) How does public procurement work?

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11) Who are responsible for public procurement?

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12) How are resources allocated for public procurement?

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13) If we look at the business entity exposure to interaction with public institutions, in the last 12 months, have you been in contact with a public official, including through an agent, for administrative procedures such as?

TYPES OF PROCEDURES IN PUBLIC OFFICES	TICK BOX
Bidding processes in public procurement procedures	
Securing contracts with public institutions without a bidding process	
Procedures related to building permits	
Procedures related to tax declaration/compliance	
Obtaining other authorizations from public institutions	
Legal proceedings for criminal offences	
Applications for public funding for setting up/performing business activities	
OTHERS:	

14) In the last 12 months was there any occasion when your business entity or anyone you know had been asked to give a public official involved in those procedures a gift, a counter favour or some extra money (other than the official fee), including through an agent? If so, how did it affect the housing sector?

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15) What is the extent of gift in value and proportion of contract?

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16) How much of these illicit funds go into the housing sector and how?

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17) How do these illicit funds find their way in commercial and public property investment?

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18) Do these illicit funds go offshore or is invested locally? What is this money spent on?

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19) In the last 12 months, was there any occasion when a public official, directly or indirectly, asked your business entity to give a gift, a counter favour or some extra money for an issue or procedure related to his/her functions but nothing was given?

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20) It is argued that not all forms of corruption are equally harmful for growth as corruption can either improve or retard development in a country. E.g., On one hand, Botswana corruption perception index (CPI) score index is 55 higher than China at 45, though

China is more developed in spite of a lesser CPI score. On the other hand, Malawi CPI has a less score and is less developed.

As a form of corruption, what do you think is the relation of kickbacks of public funds can affect the market through buying or building of housing?

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21) How does corruption generally affect growth in your opinion?

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22) "Malawian firms and individuals are under-taxed relative to the value of the public service and benefits they receive," a draft budget plan based on the November 2019 review said. Covid rising costs for government response, fiscal pressure to raise/collect revenues through taxes and levies, the cost of living is likely to go up and shrinking disposal income for households is the case.

Are your current housing loan initiatives able to assist ordinary citizens afford to get a housing loan or subsidy funding from your organisation?

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23) In your efforts, do you have other supporting service partners for these local communities?

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24) Does government ownership of banks improve or constrain low-cost housing market growth in a liberalised economy?

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25) From your experience, what are the pros and cons of government subsidies towards housing developments for low-income households?

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How can a model for low-cost affordable housing be adopted for housing finance to meet the demand for urban growth in a low/middle income economy, in comparison to advanced markets?

26) To what extent has the private sector sought funding from the public sector and what has based the outcome

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27) What in your opinion could have been done with regards funding the private sector for housing projects?

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28) What roles do you think the private sector (commercial Banks/National Banks/Developers) should have for low-cost housing market growth in urban areas?

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29) What roles do you think the external/foreign investors should have for low cost housing market growth in urban areas?

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30) What is the role of regulations and policies in the provision of affordable housing?

i. What are the regulations and policies in place to ensure the enabling environment for private sector participation in the housing sector?

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ii. How do public regulations and policies create the enabling environment for the effective participation of the private sector in the provision of affordable housing?

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iii. What have been the outcome of public regulations and policies in the housing sector.

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31) Do you have any other relevant information with respect to the subject of this interview that you may want to share with us?

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QUESSIONAIRE: HOUSING FINANCE AND INVESTMENT IN SSA:

Private Market Players

MODE OF INTERVIEW (ADMINISTERED)

Personal interview carried out by researcher.

SAMPLING TARGET:

Private Market Players: Developers, property market consultants and financial institutions (building societies, Citizen Empowerment Development Banks, commercial banks).

Hello,

My name is Joel and I am a final year Master's Degree Student in the Graduate School of Business at the University of Cape Town (UCT), researching on Housing Finance and Investment in Sub Saharan Africa like Malawi. My interest of study lies in the challenges of affordable low-cost housing finance in developing economies. I have 3 sets of questions around housing finance practices, public sector governance factors that influence housing investment finance market and third is to look at some of the contrasting housing finance options on the market that would be considered as optimal models.

PRECURSOR TO OUR INTERVIEW

Would you be so kind to tell me about yourself, your role, and possibly how long have you been with this organisation?

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Housing Finance Practices and Policies:

What are the housing finance practices and models that you use in line with the policy framework that already exist?

32) To what extent do you provide housing finance?

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33) What are the practices and models that you use?

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34) How is your housing finance business structured and for which market segment do you cater?

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35) To what extent do you service government officials and contractors?

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36) What is the difference in servicing government officials and contractors and the ordinary citizens?

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37) How much do you consider allowances and gratuity in your financing?

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38) Do you service politically exposed persons (PEP? If so, what types of housing finance service do you provide to them?

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39) Which type of housing do you usually finance (demand) to borrowers on the market? And why is that the case?

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40) With this housing type, what is the portion (%) you finance in comparison to the other types available (low-cost housing, medium cost housing and high-cost housing)

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41) Affordability seems to be a major challenge in the purchase of low-cost housing units in urban poor areas of the market, considering the rapid growths which urgently need government and private sector intervention. What do you think are some of the reasons that you see affect quicker housing delivery? From the view of.

iii. (Internally side-within the organisation)

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iv. Externally side-individual home loans

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ii) Externally-housing project construction loans?

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42) Do you think the ordinary or informal workers in the urban poor areas can have access to self-build low-cost housing finance schemes other than the normal bank loans (mortgage)? Tick below

YES	NO
Extent of Access (tick) Low average High	

43) The success of affordable housing finance (housing micro finance) for the ordinary informal worker of urban areas seems to be gaining ground particularly in emerging markets. What are the types of funding initiatives for low-cost housing in our community's do we have or need to adopt? If not, what is the challenge?

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Public Governance Factors and housing finance:

How does public corrupt practices flow of funding affect the housing finance market and vulnerable communities?

44) If we look at business entity exposure to interaction with public institutions, in the last 12 months, have you been in contact with a public official, including through an agent, for administrative procedures such as?

TYPES OF PROCEDURES IN PUBLIC OFFICES	TICK BOX
Bidding processes in public procurement procedures	
Securing contracts with public institutions without a bidding process	
Procedures related to building permits	
Procedures related to tax declaration/compliance	
Obtaining other authorizations from public institutions	
Legal proceedings for criminal offences	
Applications for public funding for setting up/performing business activities	
OR OTHERS:	

45) Please consider in the last 12 months was there any occasion when your business entity had to give a public official involved in those procedures (procurement) a gift, a counter favour, or some extra money (other than the official fee), including through an agent? if so, what was the outcome on the service?

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46) After the incident, who did you inform or share this experience with and what happened after you reported? If not, why didn't you report it?

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47) In the last 12 months, was there any occasion when a public official, directly or

indirectly, asked anyone you know to give a gift, a counter favour or some extra money for an issue or procedure related to his/her functions, *but nothing was given*?

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48) It is argued that not all forms of corruption are equally harmful for growth as corruption can either improve or retard development in a country. E.g., On one hand, Botswana corruption perception index (CPI) score index is 55 higher than China at 45, though China is more developed in spite of a lesser CPI score. On the other hand, Malawi CPI has a less score and is less developed.

As a form of corruption, how can kickbacks of public funds into individual pockets of corrupt officials affect the housing market through buying or building projects?

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49) In your view, how does corruption affect economy?

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How effective are government housing policies and programs implementation to alleviate the growing demand for affordable low-cost housing in urban areas?

50) "Malawians firms and individuals are under-taxed relative to the value of the public service and benefits they receive," a draft budget plan based on the November 2019 review said. Covid rising costs for government response, fiscal pressure to raise/collect revenues through taxes and levies, the cost of living is likely to go up and shrinking disposal income for

households is expected.

Are your current housing loan initiatives able to assist ordinary citizens afford to get a housing loan or subsidy funding from your organisation?

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51) In your efforts, do you have other supporting service partners for these local communities?

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52) Development banks owned by the state can have another mission of social responsibilities to its people than just profit making. Does government ownership of banks improve or constrain low-cost housing market growth in a liberalised economy?

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53) From your experience, what are the pros and cons of government subsidies towards housing developments for low-income households?

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<u>Models for low-cost affordable housing:</u>

<u>How can a model for low-cost affordable housing be adopted for housing finance to meet the</u>

demand for urban growth in a low/middle income economy, in comparison to advanced markets?

54) What roles do you think the local domestic private sector (commercial Banks/National Banks/Developers) should have for low-cost housing market growth in urban areas?

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55) What roles do you think the external/foreign investors should have for low-cost housing market growth in urban areas?

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56) What enabling government policy or programs do you think can help alleviate the growing demand for affordable low-cost housing in urban poor or urban town areas?

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57) What are the effects of government policies and regulations on your affordable housing finance practices and models?

i. Central government laws and regulations

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ii. City council laws and regulations

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58) How does external shocks like exchange rate affects your affordable housing finance practices and models?

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59) Do you have any other relevant information with respect to the subject of this interview that you may want to share with us?

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APPENDIX 2: DESCRIPTIVE STATISTICS OF THE QUANTITATIVE DATA

	Mean	Std. Deviation	N
Housing	36.5690	6.79334	41
Annual Inflation Rate	18.0640	14.40786	41
Annual GDP Growth Rate	3.3706	5.00330	41
US Dollars Exchange Rate	.2161	.33547	41
Urban Population	1701522.59	793983.939	41
Political Stability Estimate	-.0656	.12701	41
Corruption Rank	32.9535	6.31267	41
Interest Rate	9.7730	10.63290	41
Refugee Population	263.2593	157.87409	41
Housing Finance	28.1310	3.32278	41

APPENDIX 3: REGRESSION MODEL SUMMARY

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.682[a]	.465	.310	5.64405

a. Predictors: (Constant), Housing Finance, Refugee Population, US Dollars Exchange Rate, Corruption Rank, Annual GDP Growth Rate, Political Stability Estimate, Interest Rate, Annual Inflation Rate, Urban Population

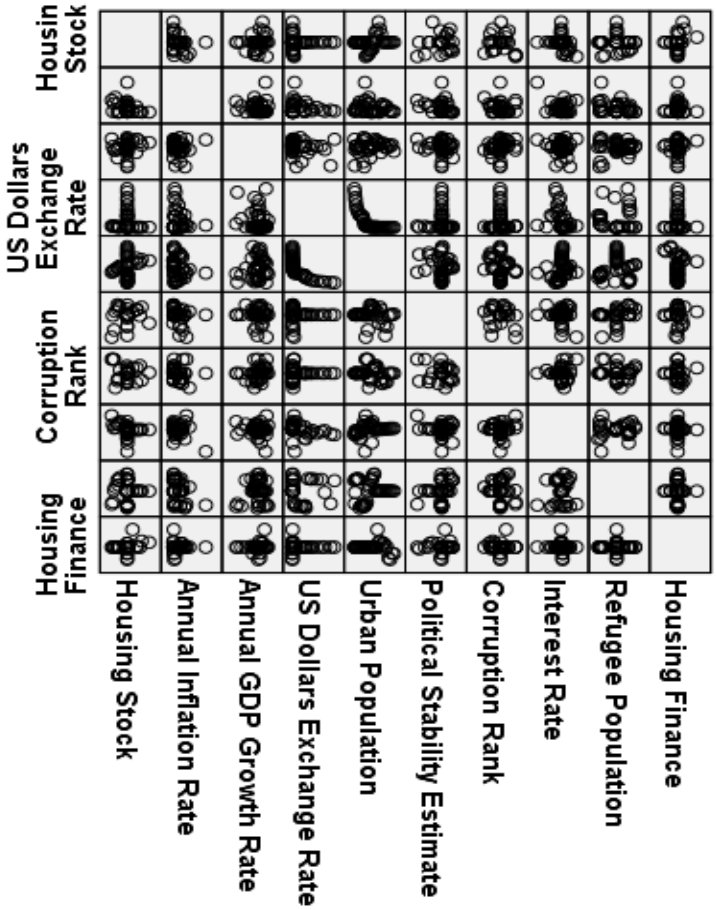
b. Dependent Variable: Housing Stock

APPENDIX 4: WORLD BANK DATA

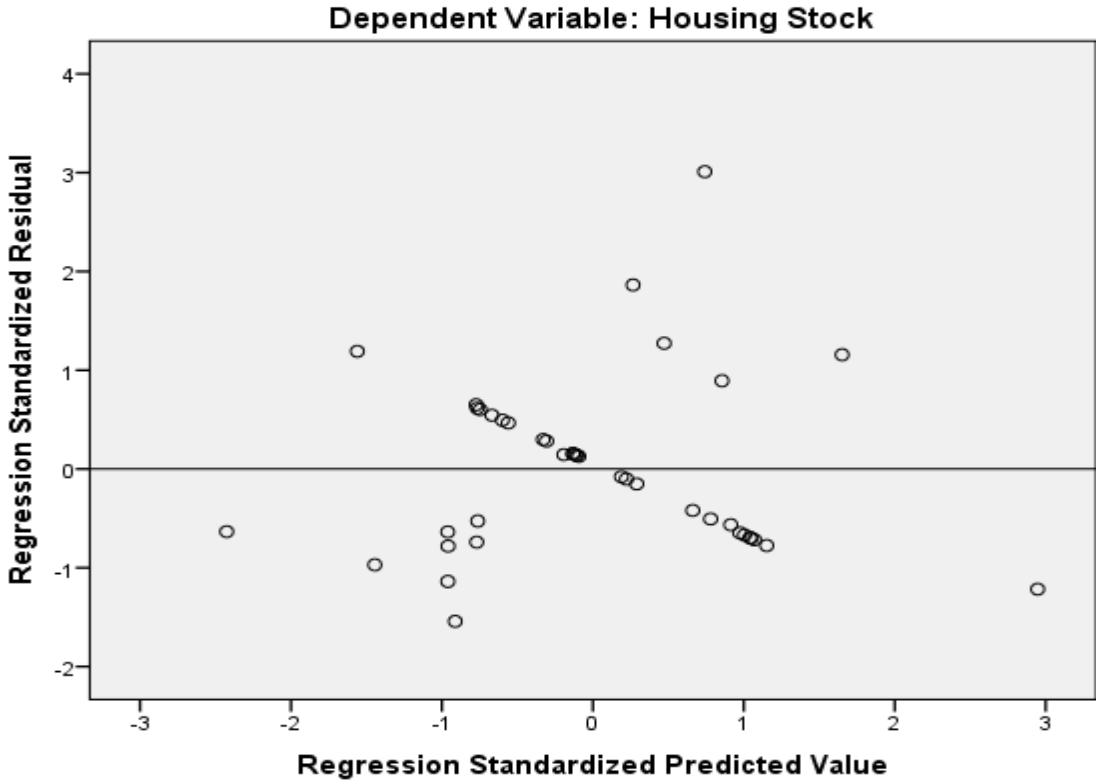
Year	Housing	Annual Inflation	GDP Growth	Exchange Rate	Urban Population	Political Stability	Corruption Rank	Interest Rate	Refugee Population	Housing Finance
1980	36.92	10.32	9.37	1.23	565,664	-0.06	32.95	0.75	420	28.13
1981	36.92	12.25	-10.81	1.12	593,979	-0.06	32.95	1.80	70	28.13
1982	36.92	9.61	1.44	0.95	622,521	-0.06	32.95	8.06	240	28.13
1983	36.92	13.55	4.21	0.85	653,848	-0.06	32.95	6.39	440	28.13
1984	36.92	19.65	3.92	0.71	691,656	-0.06	32.95	3.31	440	28.13
1985	36.92	10.85	4.71	0.58	738,674	-0.06	32.95	8.67	450	28.13
1986	36.92	14.02	2.03	0.54	797,305	-0.06	32.95	4.84	440	28.13
1987	36.92	25.06	-0.99	0.45	866,299	-0.06	32.95	2.38	450	28.13
1988	36.92	33.95	3.29	0.39	944,335	-0.06	32.95	-6.74	5	28.13
1989	36.92	12.47	4.06	0.36	1,020,366	-0.06	32.95	-4.60	40	28.13
1990	36.92	11.82	4.77	0.37	1,087,160	-0.06	32.95	6.14	37	28.13
1991	36.92	8.26	7.80	0.36	1,141,003	-0.06	32.95	15.16	27	28.13
1992	36.92	23.19	-7.92	0.28	1,183,432	-0.06	32.95	9.95	34	28.13
1993	36.92	22.79	10.77	0.23	1,219,424	-0.06	32.95	17.31	34	28.13
1994	36.92	34.63	-11.59	0.11	1,257,877	-0.06	32.95	24.31	26	28.13
1995	36.92	83.17	9.02	0.07	1,305,665	-0.06	32.95	-29.22	48	28.13
1996	22.45	37.71	9.67	0.05	1,366,005	-0.45	47.31	34.95	60	28.13
1997	23.57	9.15	3.79	0.04	1,437,292	-0.07	47.42	19.14	95	28.13
1998	24.67	29.77	1.20	0.03	1,517,849	-0.33	47.21	12.47	273	28.13
1999	25.74	44.75	1.24	0.02	1,576,265	0.00	18.18	14.70	323	28.13
2000	28.70	29.60	1.58	0.02	1,628,833	0.04	27.27	19.36	356	28.13
2001	27.86	7.64	-4.80	0.01	1,680,276	0.12	25.37	19.79	429	28.13
2002	28.91	7.71	2.66	0.01	1,731,982	0.10	27.80	20.55	427	28.13
2003	37.15	7.83	5.71	0.01	1,785,027	0.12	36.10	-13.91	434	28.13

2004	30.20	7.98	5.42	0.01	1,840,847	0.08	36.41	24.65	472	28.13
2005	37.10	8.16	3.27	0.01	1,900,711	-0.06	38.35	16.66	514	28.13
2006	36.60	8.34	4.70	0.01	1,964,736	0.05	40.67	12.72	524	28.13
2007	46.10	8.51	9.60	0.01	2,032,624	0.04	38.10	9.24	263.26	28.13
2008	48.70	8.72	7.64	0.01	2,103,938	-0.07	40.76	9.56	263.26	28.13
2009	42.00	8.42	8.33	0.01	2,179,834	0.00	38.39	9.84	263.26	41.63
2010	57.50	7.41	6.87	0.01	2,260,037	-0.21	33.65	9.91	263.26	31.71
2011	50.46	7.62	4.85	0.01	2,344,863	0.08	25.96	10.04	263.26	32.79
2012	45.50	21.30	-0.60	0.00	2,434,417	0.03	23.56	10.29	263.26	29.08
2013	36.92	28.28	6.26	0.00	2,528,901	-0.11	22.60	10.35	263.26	31.09
2014	36.92	23.77	6.21	0.00	2,627,830	-0.25	27.88	10.56	263.26	31.09
2015	36.92	21.86	3.28	0.00	2,731,662	-0.42	25.00	10.86	263.26	26.71
2016	36.92	21.73	2.68	0.00	2,839,899	-0.27	24.04	11.51	263.26	28.34
2017	36.92	11.54	5.22	0.00	2,953,396	-0.07	32.95	12.11	263.26	19.84
2018	36.92	9.22	3.88	0.00	3,072,916	-0.06	32.95	12.33	263.26	18.69
2019	36.92	9.38	5.24	0.00	3,199,301	-0.06	32.95	12.22	263.26	23.48
2020	36.92	8.64	0.20	0.00	3,333,777	-0.04	32.95	12.31	263.26	23.14

APPENDIX 5: SATTER PLOT DIAGRAM

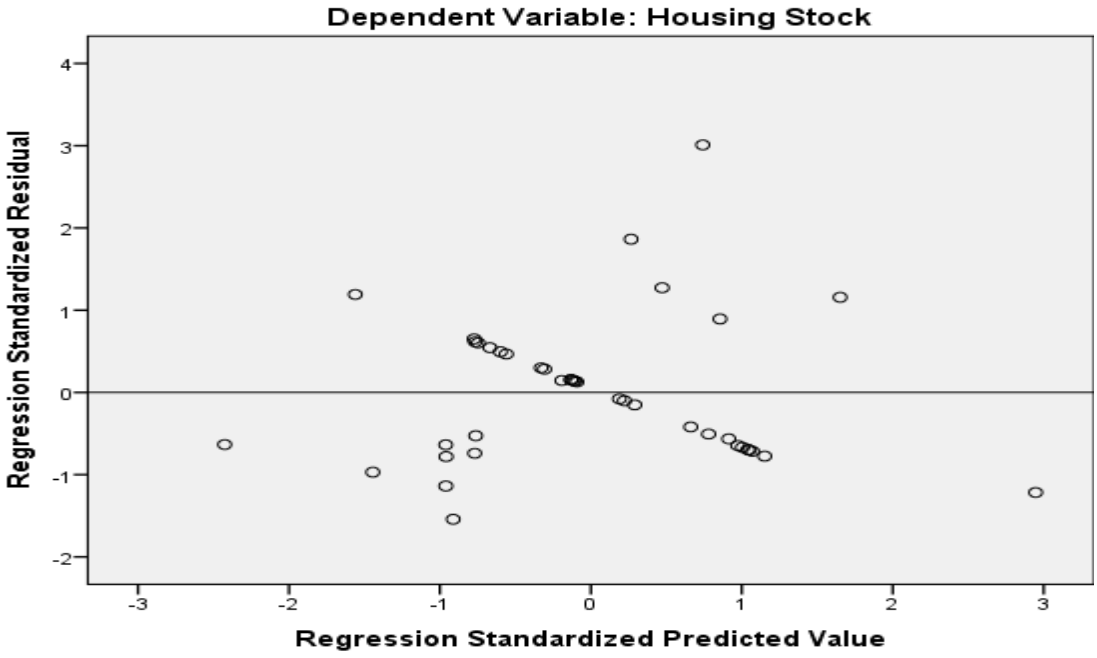


APPENDIX 6: AUTOCORRELATION PLOT



Source: SPSS output of author's construction using WB data

APPENDIX 7: HOMOSCEDASTICITY PLOT



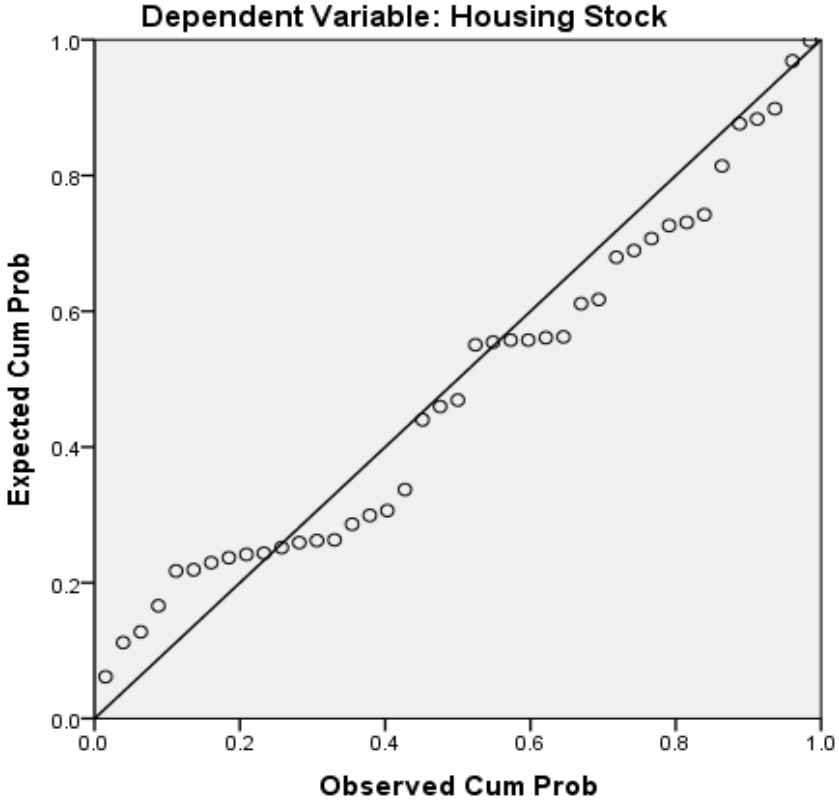
Source: SPSS output of author's construction using WB data

APPENDIX 8: MULTICOLLINEARITY MATRIX

	Annual Inflation Rate	*Annual GDP Growth Rate*	*US Dollars Exchange Rate*	*Urban Population*	*Political Stability Estimate*	*Corruption Rank*	*Interest Rate*	*Refugee Population*
Annual Inflation Rate	1							
Annual GDP Growth Rate	0.0228	1						
US Dollars Exchange Rate	0.1147	0.1686	1					
Urban Population	0.1546	0.1666	0.7491	1				
Political Stability Estimate	0.2825	0.1355	0.0402	0.12288	1			
Corruption Rank	0.1484	0.2227	0.0150	0.20102	0.1988	1		
Interest Rate	0.3193	0.1235	0.3063	0.23109	0.1650	0.1001	1	
Refugee Population	0.3572	0.09206	0.0055	0.09986	0.2926	0.1028	0.0842	1

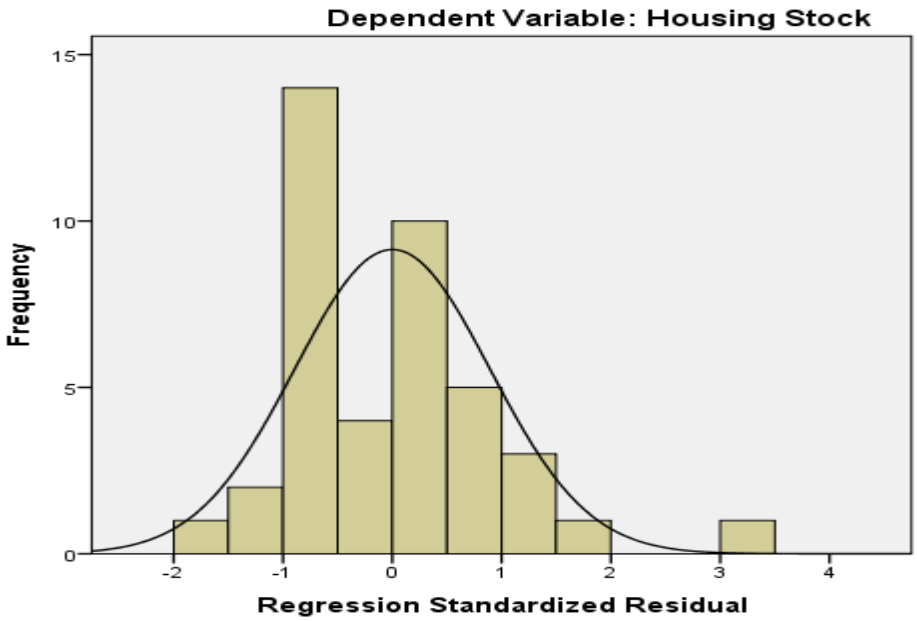
Source: SPSS output of author's construction using WB data

APPENDIX 9: NORMAL P-P PLOT OF REGRESSION STANDARDIZED RESIDUAL



Source: SPSS output of author's construction using WB data

APPENDIX 10: FIGURE 5: HISTOGRAM PLOT



Source: SPSS output of author's construction using WB data

APPENDIX 11: RESULT OF STATIONARITY TEST

Table 3: Unit Root Test at Levels

Variable		ADF Statistics	Critical Values		
			1%	5%	10%
HS	No constant	-2.384	-2.631	-1.95**	-1.607
	Drift	-2.494	-4.241	-1.683**	-1.303
	Trend	-3.666	-2.421	-3.528**	-3.197
INF	No constant	4.239	-2.631***	-1.95	-1.607
	Drift	4.138	-2.421***	-1.683	-1.303
	Trend	3.83	-4.214	-3.528**	-3.197
GDP	No constant	2.064	-2.631	-1.95**	-1607
	Drift	-2.904	-2.421***	-1.638	-1.303
	Trend	-3.592	-4.214	-3.528**	-3.197
EXR	No constant	4.897	-2.631***	-1.95	-1607
	Drift	2.857	-2.421***	-1.683	-1.303
	Trend	-3.95	-4.214	-3.528**	-3.197
UP	No constant	-1.962	-2.631	-1.95**	-1.607
	Drift	-1.693	-2.421	-1.683**	-1.303
	Trend	-3.531	-4.214	-3.528**	-3.197
CR	No constant	-4.512	-4.214***	-3.528	-3.197
	Drift	-2.384	-2.631	-1.95**	-1.607
	Trend	-2.494	-4.241	-1.683**	-1.303

IR	No constant	-3.666	-2.421	-3.528**	-3.197
	Drift	4.239	-2.631***	-1.95	-1.607
	Trend	4.138	-2.421***	-1.683	-1.303
HF	No constant	3.83	-4.214	-3.528**	-3.197
	Drift	2.064	-2.631	-1.95**	-1607
	Trend	-2.904	-2.421***	-1.638	-1.303
RP	No constant	-3.592	-4.214	-3.528**	-3.197
	Drift	4.897	-2.631***	-1.95	-1607
	Trend	2.857	-2.421***	-1.683	-1.303
PS	No constant	-3.453	-3.614	-3.438**	-3.524
	Drift	-1.512	-1.631	-1.433**	-1.527
	Trend	-1.433	-1.221	-1.233**	-1.303

, ** and * indicate no unit root at 1%, 5% and 10% respectively.* ***Source:*** *Author's computation using SPSS*

APPENDIX 11: RESULT OF SUMMARY ANOVA TEST

ANOVA

Model	Sum of Squares	df	Mean Square	F	Significance
1regression	5.682[a]	8	1.453	4.5320	0.023[b]
Residual	4.213[a]	39	.2343		
Total	9.895[a]	47			

a. Predictors: (Constant), Housing Finance, Refugee Population, US Dollars Exchange Rate, Corruption Rank, Annual GDP Growth Rate, Political Stability Estimate, Interest Rate, Annual Inflation Rate, Urban Population

b. Dependent Variable: Housing