

**EFFECT OF FOREIGN INFLOWS ON REAL ESTATE INVESTMENT IN  
KENYA**

**By**

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**DECLARATION**

I declare that the work in this dissertation has not been previously published or submitted elsewhere for award of a degree. I also declare that this is my original work and contains no material written or published by other people except where due reference is made and the author duly acknowledged

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## ABSTRACT

Foreign inflows contribute to the growth and development of countries. The financial sector plays intermediary roles between savings and investment in various economic units which spans across the selection investment projects and the final users of financial resources. Real estate investment performs a vital role in the economy of Kenya. Over the years, Kenya has experienced increased investments in the real estate sector which is attributed to the quest of owning houses by Kenyans. This study examined the effect of foreign inflow on real estate investment in Kenya. Specifically, it assessed the effect of diaspora remittance, foreign direct investments and portfolio management on real estate investment in Kenya. The study further evaluated the moderating effect of financial development on the relationship between remittance and real estate investment in Kenya. The study was guided by Pure Altruism Theory, Pure Self Interest Theory, Portfolio Theory and Financial Intermediation Theory. The causal research design was used in the study. Mainly, the Autoregressive Distributed Lag bounds test and the Dynamic Ordinary Least Squares methods were employed. The findings revealed that Foreign Direct Investment Portfolio Investment have significant negative effect on Real Estate investment in Kenya in the short run. Also, the interaction between Financial Development and Foreign Direct Investment was weakly significant. The study concluded that foreign inflowst determine Real Estate Investment only in the short run in Kenya. In the long run, their effects on Real Estate Investment wanes. The study also concludes that the moderating effect of Financial Development on the relationship between Foreign Inflows and Real Estate Investment in Kenya is feasible only through the Foreign Direct Investment channel. Therefore, the study recommends that the Government of Kenya looks inward for alternative funding options such as mortgage financing to achieve growth in the real estate sector. The foreign inflows have shown to influence real estate investment only in the short run.

**Key Words:** Foreign inflows, diaspora remittance, foreign direct investments, portfolio management and real estate investment

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## **DEDICATION**

To my ever caring mother Salome Eunice Bakhuya, My Dad Francis Kaisi, my love Karen, the blessings our marriage Marc Nathan and Mara Karisma, to you I dedicate this scholarly piece.

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## **ABBREVIATIONS AND ACRONYMS**

|                |   |
|----------------|---|
| <b>ADF</b>     | Augmented Dickey-Fuller                                       |
| <b>ARDL</b>    | Auto-Regressive Distributed Lag                               |
| <b>CBK</b>     | Central Bank of Kenya   |
| <b>CUE</b>     | Commission for University Education                           |
| <b>FIRE</b>    | Foreign Investment in Real Estate                             |
| <b>FREI</b>    | Foreign Real Estate Investment                                |
| <b>GDP</b>     | Gross Domestic Product  |
| <b>KNBS</b>    | Kenya National Bureau of Statistics                           |
| <b>NACOSTI</b> | National Commission for Science, Technology and<br>Innovation |
| <b>SMEs</b>    | Small and Medium Enterprises                                  |
| <b>UAE</b>     | United Arab Emirate   |

## OPERATIONAL DEFINITION OF TERMS

- Diaspora Remittance** Remittances are regarded as funds which are sent by emigrant to their home country where these funds transfers across international borders contribute to the improvement of the economies of the recipient countries (Cherono, 2013; Juma, 2014). In measuring diaspora remittance, remittance (% of GDP) was used in this study.
- Financial Development** Financial development relates to the establishments and expansions of markets, instruments and institutions which provide support for investments and growth processes (Elie, 2015; Puatwoe & Piabuo, 2017). Financial development in this study was assessed using domestic credit to private sector (% of GDP)
- Foreign Direct Investment** A type of investment where the investor has controlling ownership in a business in one country by an entity based in another country (Nyaga, 2013; Pisit, 2014). Foreign Direct Investment (% of GDP) for Kenya was used in this study.
- Foreign Inflows** These are regarded as Foreign inflows are regarded as funds and investments emanating from other countries in a country (home country) (Cherono, 2013; Juma, 2014). Foreign inflows include diaspora remittance, foreign direct investment and portfolio investments.
- Portfolio Investment** A portfolio investment is regarded as the ownership of a bond, stock or any financial assets which are expected to earn a return over a period of time. It notably entails hands-of or passive assets ownership as against direct investment that usually involves active management role (Mehmet, Mustafa and Ibrahim, 2014; Ezeanyeji & Ifeako, 2019). Net portfolio equity inflow (USD) was used in this study.

**Real Estate Growth**

This refers to increases purchase, management, ownership, sale or rental of real estate for purposes of achieving some profitability (Muiriri, 2015; Hamouri, 2020).

**Real Estate Investment**

Real estate investment relates to the purchase, management, ownership, sale or rental of real estate for purposes of achieving some profits (Juma, 2014). Housing Stock (the supply of housing in each period as a percentage of urban population) was used in this study.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

The study background is presented in this section which comprises of real estate globally, real estate regionally and real estate in Kenya. Discussion on foreign inflows and financial development is further documented in this section.

#### ***1.1.1 Real estate globally***

Globally, the real estate sector growth (investment) is generally recognized as a key aspect of economic growth and development of countries (Hamouri, 2020). In most countries, and predominantly emerging economies, a large proportion of the expenditures of household are linked to housing which attracts a significant part of lifetime income. It is generally the biggest asset held by households (Pisit, 2014). The real estate sector occupies a large share of the economy and its importance stems from direct multiplier effects as well as its impact on the political and social environments, most especially in developing countries (Jr-Tsung, Yu-Ning & Kuang-Ta, 2015).

Real estate is therefore categorized among the real assets which include office building, rental houses, undeveloped land, retail stores as well as factories. Similarly, real estate investments are classified broadly into three based on use namely: Commercial, Industrial and Residential real estate investments (Masron & Kepili, 2016). The global urban population growth was 1.93 percent in 2018, which is significantly high as compared to the overall population growth of 1.1 percent globally (International Finance Corporation,

2020). The high demand for real estate globally stems from the increasing urban population growth.

### ***1.1.2 Real Estate Regionally***

The real estate sector in Africa is characterized by a large demand with a notably drastic under supply in formal housing. Bah, Faye and Geh (2018) indicated that the seventeen (17) countries in Africa are marred by housing deficits spanning from 1 million units and above. A situation which if left unaddressed, inadequate housing supply will have severe constraints on the structural transformation of the continent. Shortage in the real estate sector, that is housing supply leads to increases in slums, thereby resulting to social problems such as poor sanitation, overcrowding as well as increased crime rates. Beyond these social consequences, shortages in the real estate sector is associated with economic consequences such as decreasing participation in labor participation as well as decreased productivity in the formal sector. Ugherughe and Jisike (2019) indicated that one-third of the foreign inflows (remittances) to Nigeria were utilized in investments in real estate sector. The migrants housing investment is positively linked to economic growth. A large number of diaspora members from Nigeria had existing property and real estate investment which is mostly managed family networks informally (Commonwealth Diaspora Investor Survey, 2018a). Amongst diaspora members from Ghana interested in investing in Ghana, 39% of them favour investment in property and real estate industry (39%) (Commonwealth Diaspora Investor Survey, 2018b).

The real estate sector in East Africa is booming however largely untapped (Amondi, 2016). Demand for secure and affordable housing in Rwanda is on the increase due to the

ever growing urban population which is estimated annually to be 5.75 percent, that is more than double that of rate the country's overall growth in population. The housing market in Rwanda is largely untapped (International Finance Corporation, 2020). In East Africa, the economy of Kenya stands as one of the most developed with a booming real estate sector. KIM (2018) indicated that in the vision 2030 of Kenya, over 80% of the population of Kenya is estimated to migrate from rural areas to urban areas, implying that real estate demand will be on the increase. The population of slum dwellers currently is one third of that of urban dwellers. As more people migrate from the rural to urban areas, more houses will be demanded and ore houses are needed for purposes of combating the slum uprising problem (Mungai, 2016). The real estate industry in Kenya must therefore be revisited and supported as it will have to grow at a more increased rate as it currently does.

### ***1.1.3 Real Estate in Kenya***

Kenya's real estate industry has been experiencing a boom in the 2000s where the property market was responding to the ever increasing demand of the sector. The high housing demand has been linked to high net worth investors venturing into investments in shopping malls, hotels and office complexes (Amondi, 2016). Additionally, the expenditure of government towards construction works which include expansion of airports, population growth, rapid urbanization as well as middle class expansion collectively led to the increasing demand (Knight, 2014). Cytonn Investment on Real Estate documented that the highest growth recorded in the construction industry was 14.1% which was higher than those of agriculture and financial services of 7.1% and 10.1% respectively.

Legally, Kenya's real estate is regarded as land as well as anything which is affixed to it permanently. In this context, fixtures relate to buildings, fences as well as things which are attached to buildings (heating, light fixtures and plumbing). Real estate investment therefore includes the purchase, management, ownership, sale or rental of real estate for purposes of achieving some profits (Mungai, 2016). Real estate property in Kenya encompasses all categories of properties which include single as well as multi-family residentials, agricultural and commercial, retail outlets, warehouses, shopping complexes and office space. Real estate notably is a type of asset based on limited liquidity as compared to other investments type and it is also capital intensive as well as largely dependent on cash flow (Masron & Kepili, 2016). Masika (2010) noted that in the case where the predicting factors of real estate growth are not properly understood and managed, real estate investment becomes a risky venture and can be associated with drastic adverse consequences.

Kenya over the recent past, has experience an increase in investments in real estate, which consequently led to increases in prices of properties largely in the urban areas. Thus, the emergence of real estate firms in Kenya and currently there are seventy eight (78) of them (Suley & Moranga, 2020). The growth in Kenya's real estate sector was accompanied by huge infrastructural projects by the government which include Thika super highway construction, construction of the eastern by-pass (Nairobi) where all these also led to increased prices of properties in adjacent areas (Loyford & Moronge, 2014). The residents in Kenya largely rent properties unlike the case in other neighboring countries which relatively have a balance in renting and buying interests. In Kenya, 29% of internet searches on real estate are looking to buy whereas 71 percent of the searches are towards renting

properties. In Kenya, recently both rental prices and mortgage financing have witnessed increased rates and stiffer regulations respectively (Reubenson, 2014). Currently, Kenya's demand for housing supersedes that of its supply. Ministry of land and housing survey (2017), the country is faced with an annual demand for housing of 200,000 units and a corresponding 30,000 units supply which is an undersupply.

#### ***1.1.4 Foreign Inflows and Financial Development***

Foreign inflows are regarded as funds and investments emanating from other countries in a country (home country). Foreign inflows include diaspora remittance, foreign direct investment and portfolio investments. Diaspora remittances are regarded as funds which are sent by emigrant to their home country where these funds transfers across international borders contribute to the improvement of the economies of the recipient countries (Hamouri, 2020). Remittance therefore is a source of cash inflows which extensively increases the national income of the recipient country (Muiriri, 2015). Diaspora remittance is the transfer of money to a home country by a foreign worker. The concept of remittances embraces both monetary and non-monetary flows rather than just the monetary aspect (Jr-Tsung, Yu-Ning & Kuang-Ta, 2015). Diaspora remittance is a vital aspect of any economy where when adequately used can significantly enhance socioeconomic development in a country. In addition to direct effects of diaspora remittance, there exists large multiplier effect in terms of jobs as well as economic activity (Bah, Faye & Geh 2018). Migration contributes to welfare gains for migrants that is, whether internal or international migration despite the latter exceeding the former latter in aspects of associated benefits related to the two. The implications of migration are more in developing countries compared to developed nations due to the high level of poverty, extensive downsizing of

organizations, ethno-religious conflicts, refugee movements, wide spread unemployment and rapid urbanization and its attendant patterns. In Africa, the human migration history evolved for a long period of time where it is on the increase as a result of the dynamism of different societies (Fayomi, Azuh & Ajayi, 2015).

Various forms of migration exist which include inter/intracontinental migration, global migration, regional migration as well as sub-regional migration. Migration therefore can be based on voluntary basis which is a situation where people or individuals relocate to new areas in pursuit for better economic opportunities outside the shores of their original local (home) countries. There exists also forced migration which is a scenario whereby people or individuals leave in responding to underlying conditions which is considered beyond their own control, these conditions include environmental catastrophes, conflicts and wars. The economic remittance of migrants serves as a growing and important source of foreign funds in the case of many developing nations. Over the recent past, these inflows have surge as they make up a large source of foreign income as compared to other financial flows. World Bank (2010), reported remittances of developing nations at \$334 billion. Remittances flow to developing countries has been resilient despite the global financial economic crisis which affected private capital flows, as it was recorded in 2011 at 8%. Despite remittances being a show of attachment to the country of origin, remittances of the diasporas often stand as a channel of enhancing growth in the economy. As indicated by Ikechi and Anayochukwu, remittances by migrants have impacted positively on the growth of the economy, with however varying degrees.

On the other hand, foreign direct investment (FDI) into the country is of key importance. Foreign direct investment refers to an investment where the investor has controlling ownership in a business in one country by an entity based in another country. World Bank (2016) on doing business report indicated that Kenya in a move to enhance FDI inflow have simplified the procedures relating to business establishments, acquisition of license acquisition, enhanced accessibility to credit as well as encouraged public private partnership. Foreign direct investment is important to a country as it provides capital for the long-term (Pisit, 2014). It additionally brings new technologies which are mostly not available in the target nation which is expected to have spill-over effects which entails the use of the new technologies going beyond the foreign firms. Foreign direct investments further about improvements the business environments through the introduction of rules of conduct or ethical business in the target country.

A portfolio investment is regarded as the ownership of a bond, stock or any financial assets which is expected to earn a return over a period of time (Suley & Moranga, 2020). It notably entails hands-of or passive assets ownership as against direct investment that usually involves active management role. Portfolio investment is refers to as passive investments which are not based on active control or management of the issuing company (Ezeanyeji & Ifeako, 2019). The foreign investors are characterized by relatively short-term interest in the passive investments' control or ownership but rather interest in just the profit aspect of it. Equity investments in terms of international transactions where the owner holds below 10 percent of the shares of firms are categorized as portfolio investments (World Bank, 2014). Portfolio investments are largely divided into two which are strategic and tactical investments. The former involves the buying of financial assets

(bonds, stock) for purposes of having long-term growth or their respective income yield as well as both, with the purpose of owning the assets for a long period of time. Whereas the latter entails active activity of buying and selling with the motive of having gains in the short run.

Financial development influences growth in the economy through improvements in investment efficiency through selection of projects growth in entrepreneurship as well as innovations (Mahedi, 2014). The financial intermediation role of financial institutions allows them to pool the risks associated with liquidity of depositors and invest funds into more productive and illiquid projects. The financial sector plays intermediary roles between savings and investment in various economic units which spans across the selection investment projects and the final users of financial resources in line with their respective credit worthiness while monitoring the utilization of these resources (Ugherughe & Jisike, 2019). Financial intermediaries perform significant roles in risk-pooling as well as monitoring through pooling savings together for diversified investment projects while effectively monitoring borrowing firms' behavior; banking institutions ensure promote economic growth of countries by ensuring high rates of expected return (Kiptoo, 2013; Elie, 2015).

Through financial development, financial institutions perform a key role in promoting growth of the economy through redirecting of funds towards innovative projects (Bah *et al.*, 2018). Financial intermediaries therefore function in the reduction of the level of low-return investments as a result of premature liquidation while redirecting the funds towards longer-term, higher yield projects which results in faster growth (Tabi, Njong &

Neba, 2011). Economic growth is therefore affected directly by the increasing quality of aggregate investments via profitable opportunities increases, which is partly achieved based on the informational role of intermediation (Suley & Moranga, 2020).

Financial intermediaries additionally bring about improvements in economic efficiency through overcoming the underlying frictions therein by channeling resources to the investments which are considered and established to be most efficient, providing households with benefits of scale economies in processing information which enables them identify investment projects as well as ensuring that businesses act in ways where the interests of savers are affected (Al-Jarrah, Al-Zu'bi, Jaara & Alshurideh, 2012; Cherono (2013). The current study assessed the influences of financial development on the effect of remittances on real estate investment in Kenya.

## **1.2 Statement of the Problem**

The growth and development of the real estate sector of Kenya has been hampered by various issues which span from finances as well as failure of the financial system (Cytonn, 2019). Despite the national account of Kenya indicating that the real estate sector contribution to the country's gross domestic product (GDP) stood at 10.5% in the year 2000 which grew to 12.6% in the year 2012 and subsequently 13.8% in the year 2016 (Cytonn, 2019). However, this growth fluctuated in 2017 and 2018 where it stood at 14.1% and 13.7% respectively (Kenya National Bureau of Statistics, 2019). Over the years, Kenya has experienced increased in investments in the real estate sector which attributed to the quest of owning houses by Kenyans. This is further informed by upsurge in the demand for residential homes and rentals as a result of migration from the rural urban areas and also

office space demand due to increases in the establishments of businesses (small and medium enterprises). Real estate investment performs a vital role in the economy of Kenya. The real estate sector is significant in the provision of offering of shelter to households, employment opportunities, poverty alleviation, enhancing income distribution (Juma, 2014).

Over the previous decade, the real estate sector of Kenya has been very resilient. The boom in the real estate sector survived the 2008 global financial crisis as well as post-election violence which saw various sectors of the Kenyan economy crippled. Growth in remittances has reportedly coincided with the growth of Kenya's real estate sector. Kiptoo (2013) indicated that inflows of remittance positively affected the rate of domestic savings. Juma (2014) further documented a significant positive relationship between growth in Gross Domestic Product and diaspora remittances; where it was concluded that remittances affect real estate investment growth. This there is an indicator that a significant portion of the remittances are channeled to the real estate sector, thereby contributing to the growth of the sector. However, despite the linkages between remittance and real estate growth, it is largely unclear if foreign inflows contribute significantly to real estate investment in Kenya; thus, the focus of this study.

Foreign inflow is one of the flagship projects in Vision 2030 of Kenya under the financial sector. The Kenyan Diaspora continually performs key roles in the development through remittances into the country (Amondi, 2016). The government acknowledges the role which these remittances perform in the country's economic growth. However, there is lack of adequate government mechanisms and structures for tapping into these foreign

inflows directly from the Diaspora as assets for national development and investment. The real estate sector of Kenya is benefiting from growth in the economy as well as inflow of foreign aid as it is viewed as a very viable venture. The Government of Kenya is focusing on the sector through various ways which include the establishment of the ministry of housing, provision of funds to the housing ministry; formulation and implementation of laws relating to urban planning as well as those regarding license permits (Homes Expo Kenya, 2012). However, the real estate industry in Kenya is marred by the fact that in Kenya only two financial institutions which are Housing Finance Corporation and Savings and Loans (S & L) of Kenya specialize in real estate funding (Arvanitis, 2013).

The major challenges encountered in Kenya's real estate sector stems from the rising population demanding for more housing as well as financing (spanning from the development stage as well as end user finance) (Suley & Moranga, 2020). The real estate sector in Kenya as it is in majority of African countries is characterized by increasingly high demand and a corresponding undersupply of formal housing. Due to the limited financing options where only two real estate related financial institutions exists (Housing Finance Corporation of Kenya and Savings and Loans (S & L)), the real estate industry in Kenya has been characterized by fairly rigid financing conditions (Arvanitis, 2013). In a move to address the fundamental issue of affordable housing, the Government of Kenya has contributed to investment in the real estate industry through policies as well as infrastructure development (Homes Expo Kenya, 2012). Despite the commitment of the Government of Kenya towards real estate investment and growth, the sector remains largely untapped which is evidenced by significantly higher demand than supply of housing in the country.

In Nairobi, approximately 150,000 new housing units are required per year against a maximum of averagely 10,000 units annually which indicates a significant gap. The increasing demand is attributed to commercial, industrial and residential real estate investors which span from large corporate institutions including supermarkets, banks, universities, colleges and industries in the city which usually are in need of huge space. Few studies were conducted on remittance and real estate investment which include Cherono (2013); Pisit (2014); Amondi (2016), Mungai (2016); Suley and Moranga (2020). However, the studies are characterized by various research gaps as some were based on other countries while most of the studies largely isolated other key aspect of remittance such as foreign direct investment and portfolio investment. Additionally, the moderating effect of financial development on the relationship between remittance and real estate investment which is one of the objectives of this study was ignored by previous studies. It is against this backdrop that the current study aims at establishing the effect of foreign inflows on real estate investment in Kenya. Unlike previous studies which largely focused on economic growth, the current study was based on real estate investment which is a narrow but key aspect of economic growth of a country.

### **1.3 Objectives of the Study**

#### ***1.3.1 General Objective***

The general objective of the study was to investigate the effect of foreign inflows on real estate investment in Kenya.

#### ***1.3.2 Specific Objectives***

- i. To examine the effect of diaspora remittance on real estate investment in Kenya

- ii. To establish the effect of foreign direct investment on real estate investment in Kenya
- iii. To investigate the effect of portfolio investment on real estate investment in Kenya
- iv. To assess the moderating effect of financial development on the relationship between foreign inflows and real estate investment in Kenya

#### **1.4 Research Hypotheses**

The following hypotheses were tested:

**H<sub>01</sub>:** Diaspora remittance has no significant effect on real estate investment in Kenya

**H<sub>02</sub>:** Foreign direct investment has no significant effect on real estate investment in Kenya

**H<sub>03</sub>:** Portfolio investment has no significant effect on real estate investment in Kenya

**H<sub>04</sub>:** Financial development has no significant moderating effect on the relationship between foreign inflows and real estate investment in Kenya growth in Kenya

#### **1.5 Significance of the Study**

The study is of importance to a variety of groups. These groups include the real estate firms, regulators or government agencies, investors, investment or financial analysts/consultants and academicians.

##### ***1.5.1 Real Estate Firms***

The study would be resourceful to the managers of real estate firms. The study exhaustively provided them with the foreign inflows attributes which contribute significantly to the growth of the real estate in Kenya. This in turn will help them in their various activities while making well informed decisions.

### ***1.5.2 Regulators or Government Agencies***

The regulators, governments or policy makers will also benefit from the outcome of this study. The government through the Ministry of Housing will have recommendations for policy making. The recommendations which are informed by variables which significantly predict real estate growth, when implemented will lead to optimum growth of the real estate industry of Kenya.

### ***1.5.3 Investors***

This study is of significance to investors in the real estate industry as well as potential investors who may wish to venture into the real estate business. The study provides them with more insights on the underlying relationship between remittance and real estate investment in the context of Kenya.

### ***1.5.4 Investment/Financial Analysts and Consultants***

The study findings are useful to investment/financial analysts as well as other consultants. These stakeholders will understand better the statistical relationship between foreign inflows and real estate investment in Kenya. This in turn will enhance consultation services in the real estate industry thereby leading to an efficient one. In general, this study through the specific findings furnishes these stakeholders with empirical and theoretical evidences on the nexus between foreign inflows and real estate investment in Kenya.

### ***1.5.5 Scholars and Academicians***

The study would be of great importance to scholars and academicians who may wish to use its findings as a basis of further research on the subject matter thereby adding to the existing body of knowledge in the area of remittance and real estate investment. Findings of this study would contribute to the already available knowledge in this area and

as a result contribute to theory that already exist in this discipline, and it would also enable scholars to carry out further research by identifying information gaps in this study. Besides, it would also facilitate related arguments and debate among scholars in this area.

### **1.6 Scope of the Study**

The study focused on foreign inflows and real estate investment in Kenya. The independent variables are diaspora remittance (volume of remittance in USD), foreign direct investment (FDI as a share of GDP) and portfolio investment (Net portfolio equity inflow), moderating variable is financial development as measured by ratio of private credit to GDP and real estate investment as proxied by percentage growth in Real estate investment based on housing stock (the supply of housing in each period as a percentage of urban population) is the dependent variable, thus, the conceptual scope of the study.

The study was based on the context of the real estate sector of Kenya. The theoretical scope of the study is based on Pure Altruism Theory, Pure Self Interest Theory, Portfolio Theory and Financial Intermediation Theory. The study was based on the time scope of 30 years, that is spanning from the period 1990 to 2019 which captures the latest period (data) being 2019. The study applied times series regression analysis which is the methodological scope of the research. Causal research design was applied in this study as it sought to examine the cause and effect relationships of remittance and real estate investment.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The current section of the study contains the review of theoretical as well empirical literature. Various theoretical underpinnings and empirical works relating to the relationship between remittance and real estate investment are reviewed. The various research gaps contained therein were identified and ways by which these gaps were addressed clearly outlined. A conceptual framework illustrating the underlying linkages between the study variables is also documented in this section.

#### **2.2 Theoretical Review**

In respect to the linkages between remittance and real estate investment, various theories have been identified. The postulations of these theories provide underpinning relationship between the research variables. These theories include Pure Altruism Theory, Pure Self Interest Theory, Portfolio Theory and Financial Intermediation Theory.

##### ***2.2.1 Pure Altruism Theory***

Pure Altruism Theory was propounded by Comte in 1973. The theory relates to the attitude and ethical way which is concerned with people's happiness. The altruism drive stands as one of the key motives for remittance by migrants. The Theory holds the view that remittances by migrants are informed by their concerns about the welfare of their family members at home (Hagen-Zanker & Siegel, 2007). In this theory, the utility of the migrant emanates from his family back home. The satisfaction of the migrant stems from the welfare of his family back home (OECD, 2006). The implication of this assertion is

that the migrant remains motivated towards continuous remittance of funds when there is unfavorable condition to his family.

This model views remittances as “compensatory transfers” as they increase in times where the home country of the migrant is facing adverse economic conditions which can be financial crisis or droughts (Chami *et al.*, 2013). Due to the compensatory nature of remittances based on Pure Altruism Theory, remittances are viewed as countercyclical, such that, increases in remittances is experienced during period where economic conditions in the business cycles are deteriorating (Vargas-Silva, 2016).

Notably, the link between altruistic remittances and growth patterns can be countercyclical which is hinged on the view that migrants will have more remittance in times of economic disturbances so as to smoothen the consumption of their families back home as well as fuel investments. Also, an inverse relationship between quantity of remittances and economic conditions in the recipient country is documented as the behavioural trends of remittance based on Pure Altruism Theory (Brown, 2006). Under this proposition, a home country with favourable economic conditions will translate to decreases in the inflow of remittances. Foreign inflows is therefore supported by Pure Altruism Theory as funds are transferred to home countries during times of economic instability for purposes of smoothening consumption and also fueling investments.

### ***2.2.2 Pure Self Interest Theory***

Pure Self Interest Theory was advanced by Lucas and Stark (1985). The theory Self-interest (selfishness) is conversely the opposite of altruism, that is, selflessness. The classification of the theory however is based on the following motives: insurance, strategic,

investments exchange and inheritance. This theory (Pure Self Interest) is hinged on the view that remittance is not always countercyclical as in the case with Altruism. Instances exist where the quantity of remittance decreasing due to poor economic conditions of the home country. In this scenario, an underlying inverse relationship exists between quantity of remittance and economic conditions in the recipient country (Brown, 2006). The correlation between quantity of remittance and economic performances of the recipient country characterized by bad economic conditions is evident in low quantity of funds remitted. These behavioral patterns brought about the advancement of Pure Self Interest Theory.

The theory holds the view that the self-interest serves as another motive for remittances to their home country. Based on this preposition, migrants remit money to home country for purposes of investing or inheriting assets as well as for to return back home with some prestige. In periods where the home country is characterized by unfavourable economic conditions, less remittance is received from migrants as they believe such situations will adversely impact on both inheritable and investible assets. However, in periods of favourable economic conditions, the volume of migrants' remittances is likely to increase with such positive pattern.

Remittances therefore in this case serve as self-interest (insurance) motive. The motive which emanates in various forms; for instance, remittance by migrants lead to the alleviation of the risk of crop failure, insecurity of land tenancy, price fluctuations, livestock diseases as well as inadequate availability of agricultural wages. These remitted funds by migrants to their home countries are used in investing in various assets which

include real estate investment and in turn leading to growth in the real estate sector. The theory provides linkages between diaspora remittance and real estate investment.

### ***2.2.3 Portfolio Theory***

The theory was introduced by Markowitz (1952). The model theory encompasses alongside the degree of risk for a certain return and not just the expected return. The theory is guided by the view that an individual (investor) will pick the investment having the lowest risk given the same level of expected return. Investors assess risks based on the standard deviation or variations of investment. For each investment, the expected return as well as its probability over a given period of time can be quantified by the investor. Notably, investors strive to have maximum utilizations of their investments.

Portfolio Theory holds the notion that the investment behavior of an individual is important not just in the context of individual investment but also in when looking at portfolio composition. A portfolio's risk takes into consideration the risk and return of each investment and the correlation of the investment with the other investments therein the portfolio (Bodie, 2005). Portfolio risk is affected by the risk associated with each of the investment in the portfolio with regards to its return; also, the correlation of each of the investments with those of other investments contained in the portfolio. An efficient portfolio is one which the investor receives a higher expected return with lower or same risk levels in comparison with other investment(s) (Fama, 1992).

The theoretical rationale for investment in alternative asset class which include bonds stocks) is for purposes of decreasing the risk and in turn improving the reward

characteristics of a portfolio investment with a view of the assets offering higher returns while also improving on diversification of portfolio. The determination of the effect of portfolio composition along efficient frontier is based on the risk level which has been taken by investors as well as accrued returns from the portfolio mix which is dependent on market performances. While an efficient frontier depicts each of the efficient portfolios in relation to levels of return and risks, each of the efficient portfolios however may not be suitable for all investors. When establishing investment policy, risk and returns stand as the main objectives. As such, the risk profile of an investor is demonstrated using indifference curves. Portfolio composition notably, is largely dependent on the advice received by investors. Portfolio theory supports the nexus between portfolio investment and real estate investment.

#### ***2.2.4 Financial Intermediation Theory***

Financial Intermediation Theory was developed Diamond (1984). This theory is hinged on the notion that financial intermediaries play a role of reduction of costs which relate to transactions and information asymmetry. The financial systems perform a role of credit expansion to the various sectors of the economy where such credit is utilized for various purposes spanning from investment and consumption. The financial sector carries out important roles that lead to the emergence of specialized financial commodities (Scholtens & van Wensveen, 2003). Andries (2009) documented that financial intermediaries therefore are established due to the existing imperfections inherent in the market. Notably, if the market was perfect market, then financial intermediaries wouldn't come to existence.

Financial development relates to the establishments and expansions of markets, instruments and institutions which provide support for investments and growth processes (Adnan, 2012). It is an integral part of private sector development strategy which is geared towards the stimulation of growth in all spheres of the economy while reducing the costs incurred in the financial systems. The process therefore entails the reduction of costs of information acquisition, contracts enforcement as well as carrying out transactions which leads to the establishments of markets, intermediaries and financial contracts (Calomiris, Heider & Hoerova, 2015). Notably, various combinations and types of transactions, information and enforcement costs in line with various legal, tax and regulatory systems led to the emergence of distinct forms of contracts, markets and intermediaries in different times across nations. Antzoulatos (2008) put forward that the level of information asymmetry decreases with the degree of development of financial systems. Therefore, a developed financial system provides various specialized services as well as efficient operations which facilitate the reduction of market asymmetric information.

Financial Intermediation Theory remains relevant to this research as it supports the relationship between financial development and real estate investment. Financial development relates to credit allocation and expansion to the private sector for purposes of investment. A well-developed financial sector offers low information and transaction costs where credits are efficiently allocated. The efficient allocation and expansion of credit to potential businesses and the private sector brings about improvements in industrial growth which consequently enhance growth of the economy. The efficient credit allocation to

potential projects leads to innovations and growth of the real estate sector of the country and boosts confidence of prospective projects as well as businesses.

Financial development and real estate nexus is therefore supported by financial intermediation theory. Banking sector development entails efficient allocation of credit facilities which in turn contributes to real estate investment. Via financial development, financial institutions perform a key role in promoting growth of the economy through redirecting of funds towards innovative projects (Bah *et al.*, 2018). Financial intermediaries therefore function in the reduction of the level of low-return investments as a result of premature liquidation while redirecting the funds towards longer-term, higher yield projects which results in faster growth (Tabi, Njong & Neba, 2011). Economic growth is therefore affected directly by the increasing quality of aggregate investments via profitable opportunities increases, which is partly achieved based on the informational role of intermediation (Suley & Moranga, 2020). The current study assessed the influences of financial development on the effect of remittances on real estate investment in Kenya.

### **2.3 Empirical Review**

The review of empirical works relating to remittance and real estate investment are contained in this section. The approaches of the previous studies are interrogated and findings reported where underlying gaps are identified for purposes of addressing these gaps in the current study.

### ***2.3.1 Diaspora Remittance and Real Estate Investment***

Regardless of the notion that African nations had substantial proportion of their skilled force lost through the “brain drain” or emigration, which is largely linked to lack of economic opportunities as well as conflicts among other attributes, African nations have however benefitted from remittances by these emigrants through economic growth in the region. Over the decade, in 2010, global flows of remittance flows stood at above US\$440 billion. With respect to this volume of remittances, US\$325 billion is attributed to developing nations, thereby amounting to 73.9% which is a high proportion of total global remittances (World Bank, 2011). Various researchers have pointed that in the case of many developing nations, migrant remittances have positive influences on the balance of payments and economic growth. This is through the direct influences which they exert on investments and savings in physical and human capital as well as indirect influences through household consumption. The consumption level of households is increased by remittance by diasporas, which translates to substantial multiplier effects due to the notion that these funds are to be spent on food produced locally. Despite the notion of diasporas remittances positively affecting economic growth, some researchers perceived these influences to be contrary. These researchers hold the view that productivity and growth and undermined by remittances in countries with low-income because rather than productive investments, they are readily spent on consumption.

Hamouri (2020) evaluated the effects of remittances on Jordanian real estate market. The research sought to ascertain the effects of remittances on real estate sector in

particular and the economy in general in the context of Jordan. Annual data was used and the time period covered in the study was 1990 to 2015. Analytical and descriptive approaches were both applied in the study. Augmented Dickey-Fuller (ADF) procedure and Auto regressive Distributed Lag (ARDL) approaches we utilized. The study results reveal that remittances positively impact on Jordanian real-estate market. The study was of the recommendation that guidelines and policies be formulated towards remittances in Jordan so that it can be invested in long term developmental investments. The study further recommends that official decisions be adopted relating to cease of buildings for a temporary time period for purposes of preventing the worsening of crises in local real-estate. The study notably was focused on the real estate sector of Jordan which are guided by varying laws and regulations. Additionally, financial development and its underlying influence on the relationship between diaspora remittance and growth in the real sector was not considered.

Afeshat and Dmour (2012) explored the real estate determinants in the context of Aqaba area in Jordan. The aim of the study was to analyze and determine the factors contributing to real-estate investments in Aqaba area. Descriptive technique was applied in the research. The study documented that job of immigrants to Sydney from Ghana accounted for 33% from their income, thereby enabling them construct 100, 000 residential houses in Ghana from the period of 3 to 6 years. Due to the increasing real estate demand in Jordanian market and the real estate demand by expatriate. The study concluded that expatriates' remittances contribute to real estate investment in Jordan. The study was

however centered on the Jordanian real estate sector and this study focused on the real estate sector of Kenya.

Fayomi *et al.*, (2015) analyzed the impacts of remittances on economic growth in Nigeria. The study focused on Nigerian Diasporas living in Ghana. The activities of Nigerian diasporas living in Ghana was studied from the aspect of remitted funds Nigeria towards the economic growth of Nigeria. There exists dynamism and complexities in the patterns of migration as well as remittances and its implications on the growth of the economy within West Africa sub-region. Primary data (questionnaire instrument) was used for a population size of three hundred and thirty six (326) respondents residing in Ghana. A linear regression and non-parametric (chi-square) methods were used which show that remittances from Diasporas from Nigerian Diasporas living in Ghana contribute significantly to Nigeria's economic growth. Additionally, the outcome showed that remittances have significant support towards investments and savings in Nigeria which included charity support activities and community-based developmental projects. The study suggested the need to provide sufficient infrastructures which will attract further remittances into the economy from diasporas via a more efficient formal financial and high interest reward investment scheme. The previous study notably focused on economic growth and investments in general. This study makes specific emphasize to real estate investment in Kenya.

Adams and Cuecuecha (2013) analyzed the effect of remittances on investment and Poverty in the Ghanaian context. The study assessed the effect of internal remittance, that is, from Ghana and international remittance from African or other countries on poverty and investment in Ghana. The study documented three key findings. First, when compared to

what they would have spent without the receipt of remittances, households receiving remittances spend less at the margin on food. Second, households receiving remittances spend more at the margin on three investment goods: education, housing, and health. Third, the receipt of remittances greatly reduces likelihood of household poverty. These findings support the growing view that remittances can reduce poverty and increase investment in developing countries. The study however was based on Ghana which is guided by varying regulations and laws. The current study is different as it focuses on real estate investment in Kenya.

Ukeje and Oiechina (2013) assessed the impacts of the workers' remittances on economic growth in Nigeria based on time series data ranging from 1970. Remittances which went to developing nations had a sharp decline of over US\$300 b in terms of remittances by workers which were transferred globally via official channels, however, there is the likelihood that additional billions were transferred via unofficial channels. It was reported that the remittances by workers significantly and positively linked to economic growth. The study however was done in Nigeria and economic growth which is more broad than real estate investment was the focus of the study. This study in addressing the gaps in literature sought to assess the effect of diaspora remittance on real estate investment in Kenya.

Cherono (2013) studied the effects of remittances on Kenya's private investments. The study additionally sought to find out the effect of financial sector development on the associations between remittance and private investments in Kenya. The research applied secondary data for the time duration 1980 to 2011. Multiple regression analysis was used which modeled development indicators such as gross domestic product, initial level of

investment as a function of nominal exchange rates, inflation, nominal interest rates, remittances, private sector credit and foreign direct investment. The results of the research indicated that remittances positively and statistically related to private investments in Kenya. The study however was based on private investments unlike this study which focuses on the real estate sector in Kenya.

Juma (2014) investigated the effect of macro-economic variables on real estate investment in Kenya. Descriptive research design was followed in the study. Secondary data was based on annualized real estate investments growth based on Hass Consult. Secondary on was obtained from the Kenya National Bureau of Statistics (KNBS) and Central Bank of Kenya (CBK) spanning from the time scope 2000 and 2013. The research documented a significant relationship between growth in diaspora remittances and growth in GDP. The study further established that remittances had significant relationship with growth in real estate investments. Other key aspects on remittances such as portfolio investment and foreign direct investment were isolated in the study which form two of the specific objectives of this study.

Muiriri (2015) explored the effect of diaspora Remittances on Kenya's real estate investment. The investigation sought to evaluate the effect of Diaspora remittance on growth in the real estate sector of Kenya. The research utilized descriptive research design where the time scope was the period 2004 to 2013 (10 years). Regression analysis was carried using using SPSS based on secondary data. The study findings depicted that real investment growth in Kenya is negatively impacted by diaspora remittances. However, the impact is insignificant 5% level of significance. The study notably recommended that

additional studies should be carried out on longer time period as this will provide more conclusive and sufficient information on the effect of diaspora remittances on real estate investment in Kenya. In view of this recommendation, the current study covers a longer time scope spanning from 1985 to 2019. Additionally, the moderating effect of financial development on the relationship between diaspora remittances and real estate investment in Kenya was examined.

### ***2.3.2 Foreign Direct Investment and Real Estate Investment***

Masron and Fereidouni (2012) studied the effects of foreign direct investment on foreign investment in real estate sectors (FREI) while focusing of emerging economies. The research was based on panel data methods focusing of sixteen (16) emerging economies. The study focused on the period 2000 to 2008 based on time series data on each of the countries. The study findings indicated that nations having higher FDI levels in other sectors are able to attract higher amounts of FREI. This implies that foreign real estate investors follow multinationals companies in emerging economies. The study specifically established that FDI has a positive and significant association with FREI. The study documented that policy makers in the context of emerging economies will have foreign real estate investors as well developers entering their countries within the times of FDI expansion. The study however pointed to the fact that the results obtained are based on cross country analyses and should be treated with caution. The current study sought to address this limitation by focusing on the real estate sector of Kenya thereby providing a country specific outcome which in turn yielded country specific conclusion and policy recommendations.

Pisit (2014) studied the impacts of foreign direct investment on Thailand's production sectors. The study applied secondary data for the time frame 2005 to 2013. Based on regression techniques, the study established that foreign direct investment had positive impacts on the retail trade, manufacturing, construction, and agriculture, financial and wholesale sectors. The study attributed the competitiveness of the manufacturing sector in Thailand to the technical knowhow as well as capital provided through FDI in Thailand. Despite the documented the impacts of FDI on various sectors in Thailand, notably the real estate sector was isolated. Additionally, due to varying underlying regulatory conditions, the outcome of studies in Thailand cannot directly applicable or generalized to the Kenyan context. The current study further incorporated other key variables such as diaspora remittance and portfolio investments.

Jr-Tsung, Yu-Ning, and Kuang-Ta (2015) explored the roles of foreign direct investment in the prices of Shanghai real estate. The research used regression methods and the findings show that Real Estate FDI has insignificant effect on prices of real estate for both housing and office prices in the short run. However, a significant effect on Real Estate FDI was reported in the long run for office prices. The study concluded that based on the foregoing assumption, it can be argued that real estate FDI has significant effect on performances of real estate sector of the recipient country in line with the established association with prices of real estate. Increases in demand for housing by MNCs (commercial and residential properties) are linked to increased FDI inflow. This increasing demand attracts foreign investors and also their local counterparts which seek to capitalize on the situation of rising demand. Therefore, with both sectors striving towards achieving

profits from the rising demand in the real estate sector, real estate investments and mortgage financing will likely have similar increasing trend thus, affecting the prices of real estate in the recipient country. The study however centered on real estate prices in the context of Shanghai. In contrast, this study focused on real estate investment in the Kenyan context, thereby filling the conceptual and contextual gaps.

Cherono (2013) evaluated the effect of remittances on Kenya's private investments. The study additionally sought to find out the effect of financial sector development on the associations between remittance and private investments in Kenya. The research applied secondary data for the time duration 1980 to 2011. Multiple regression analysis was used which modeled development indicators such as gross domestic product, initial level of investment as a function of nominal exchange rates, inflation, nominal interest rates, remittances, private sector credit and foreign direct investment. The study findings revealed that foreign direct investment significantly affects private investments. The study isolated portfolio investment which is a key variable. Additionally, the study was based on private investments in general whereas this study differed as it specifically focused on real estate investment (growth).

Nyaga (2013) examined the effects of foreign direct investments on economic growth of Kenya. The period spanning from 1982 to 2012 was used. Based on regression techniques, the study documented that FDI has a positive relationship with Kenya's economic growth. The study further documented that flow of FDI lead to higher imports than exports and higher investments than savings that bring about increase wages as well

as labor productivity. The study additionally linked foreign direct investment with creation of employment which in turn leads to poverty eradication in the recipient country thereby leading to the stimulation of local firms' productivity via transfer of expertise and technology. The research was of the recommendation that studies be carried out on effect of FDI on specific sectors of the economy. In view of this recommendation, this study sought to specifically focus on the real estate sector by establishing the effect of foreign direct investment on real estate investment.

Amondi (2016) examined the effect of foreign direct investment on performances of real estate sector in the context of Kenya. The study indicated that the roles performed by real estate sector on the economy are of key importance especially to emerging economies. The study aimed at assessing the effect of FDI on real estate sector performances in Kenya. Descriptive research design was used based on secondary. Based on descriptive and inferential analyses, the study established that foreign direct investment affected the performances of Kenya's real estate sector. The study found that FDI has positive effect on performances of Kenya's real estate sector. The research put down the recommendation that the national government should create a conducive climate for encouraging more investments into the real estate industry of Kenya. The study however did not consider diaspora remittance and how it affects real estate growth in Kenya. Additionally, the moderation effect of financial development was not considered in the previous study which is one of the specific objectives of the current study.

### ***2.2.3 Portfolio Investment and Real Estate Investment***

Albulescu (2015) undertook a study which sought to determine whether foreign direct and portfolio investments impact on economic growth in the long term in Western and Central Europe. The study tested the effect of FDI and FPI on the long-term economic growth for Central and Eastern European (CEE) countries which was based on a panel regression analysis. GMM approach was used and various control variables were included such as interest rate, unemployment rate, inflation, money supply, exchange rate, level of decuation as well as primary energy consumption. The research focused on the period analyzed 2005 to 2012 while focusing on thirteen (13) CEE countries which include Croatia, Bulgaria, Czech Republic, Cyprus, Hungary, Estonia, Lithuania, Latvia, Poland, Malta, Slovak Republic, Romania as well as Slovenia. The research documented that both portfolio and direct investments had influences on economic growth in the long-term. The findings further imply that incentive packages should be oriented toward the two types of investments which are foreign direct and portfolio investments. The study however was focused on Central and Eastern European (CEE) countries which are developed countries, whereas Kenya was the focus of this study. Additionally, the study looked at economic growth in general whereas an aspect of it (real estate sector) was considered in this study.

Mehmet, Mustafa and Ibrahim (2014) studied the association between foreign portfolio investments and economic growth in Turkey. Capital transfers which are achieved via short term FPI and FDI are key for countries with inadequate national savings. The research sought to assess the long run linkages between foreign portfolio investment and Turkish economic growth with focus on the time frame 1990 to 2012. The study was based

on the framework of co-integration analysis. The study results reveal an insignificant relationship between capital transfers (FPI and FDI) and economic growth in the long run. The study recommended that FPI investments should not only support consumption but in addition be utilised in more productive areas. The study focused on Turkey which is based on varying market conditions as compared to Kenya.

Ezeanyejji and Ifeako (2019) studied the impacts of foreign portfolio investment on Nigeria's economic growth. The study focused on the time frame 1986 to 2017. ADF test Error Correction Mechanism and Johansen co-integration methods were used in the study analysis. The study findings reveal that foreign portfolio investments significantly and positively impact on Nigeria's economic growth. The study was of the recommendation that government should formulate policies towards promoting capital market and economic growth in the long run. The study further recommended that government should establish a conducive environment for business. The study additionally recommended that capital market through derivatives should be deepened. The study notably focused on economic growth as a whole whereas this study focuses on real estate investment. The real estate sector is a narrow but key component of the economy. The current study is therefore sector specific which in turn will facilitate effective policy making in the real estate sector.

Mungai (2016) investigated how financing options affect real estate growth in Kenya a case of Nairobi Metropolitan. The study put forward it is challenging funding big real estate projects based on personal savings alone. As such, the need for the use of other sources of finance arises such as mortgage from financial institutions such as mortgage institutions, commercial banks or venture capital and equity. Primary data was used as

sourced from registered developers in Nairobi Metropolis, Kenya. A sample size of eighty-one (81) was used based on a population of hundred (100) registered developers with Kenya Property Developers Association. The study documented that portfolio investment (equity financing) had significantly affect the real estate growth in Nairobi Metropolitan, Kenya. The study notably, apart from using primary data, isolated financial development and its moderating effect on the associations between portfolio investment and real estate investment in Kenya. This study focuses on real estate investment in Kenya as a whole rather than Nairobi Metropolitan.

Suley and Moranga (2020) did a study on indirect investment and financial performances of the real estate sector while focusing on the context of Nairobi County Kenya. The research sought to ascertain the effects of indirect investments on real estate performances in Nairobi County, Kenya. The research utilized secondary data as sourced from online sources as well as company offices. Multiple regression methods were used. Out of the sixty-nine (69) registered (KPDA) real estate firms, data only gotten from forty-five (45) of these firms. It was established that portfolio investment had significant relationship with real estate performances. The study though on Kenya, it did not consider diaspora remittances and their effect on real estate investment which is one of the objectives of this study. Additionally, the moderating effect of financial development on the relationship between portfolio investment and real estate investment in Kenya was not considered.

#### ***2.3.4 Financial Development and Real Estate Investment***

The accumulation of financial assets rather than non-financial assets at a more rapid rate is regarded as financial development (Puatwoe & Piabuo, 2017). Financial development comes about when financial intermediaries, financial markets as well as financial instruments decrease the costs of transactions, cost of contract execution, costs of acquiring information thereby performing a more efficient financial function without necessarily eliminating them (Yıldırım, Özdemir & Doğan, 2013). Adnan (2012) indicates that financial development relates to the factors, institutions and policies which bring about efficient intermediation as well as effective financial markets. As such, a strong financial sector provides effective allocation of capital and diversification of risks. Therefore, the deeper the financial development, the more efficient savings mobilization and its allocation to high return projects will be. Similarly, the higher the financial development levels of a nation, the more will financial services be available. Importantly, a well-developed financial system is characterized by higher returns amidst lower associated risks.

Financial development influences growth in the economy through improvements in investment efficiency through selection of projects growth in entrepreneurship as well as innovations (Mahedi, 2014). The financial intermediation role of financial institutions allows them to pool the risks associated with liquidity of depositors and invest funds into more productive and illiquid projects. The financial sector plays intermediary roles between savings and investment in various economic units which spans across the selection investment projects and the final users of financial resources in line with their respective credit worthiness while monitoring the utilization of these resources (Ugherughe & Jisike, 2019). Financial intermediaries perform significant roles in risk-pooling as well as

monitoring through pooling savings together for diversified investment projects while effectively monitoring borrowing firms' behavior; banking institutions ensure promote economic growth of countries by ensuring high rates of expected return (Kiptoo, 2013; Elie, 2015).

Guru and Yadav (2019) did a research on financial development and economic growth for five (5) major emerging economies Brazil, Russia, India, China and South (BRICS) countries. The study focused on the time frame 1993 to 2014 based on panel regression analysis. Generalized method of moment system estimation (SYS-GMM) was used in investigating the relationship between financial development and economic growth. The indicators of banking sector development were domestic credit to private sector (CPS), credit to deposit ratio (CDR), size of the financial intermediaries while turnover ratio and value of shares traded were applied as indicators of stock market development. The study controlled for secondary education enrolment, exports, inflation and exports. Findings from the study indicates that all the selected indicators for banking development such as CPS, CDR and size of financial intermediaries, CDR and CPS had significant positive effect on economic growth in presence of turnover ratio. Additionally, value of shares traded is found to have significant positive linkages with economic growth in presence of all the selected indicators of banking sector development. This was notably not same when turnover ratio is regressed in presence of banking sector variables. The study in general concluded that indicators of stock market development and banking sector development complement each other towards stimulating economic growth. The study documented that in line with the positive relationship between financial development and economic growth, policymakers should therefore apply necessary measures for having

simultaneous development across both stock market and banking sector so as to induce growth. The study however was a cross country analysis of emerging economies Russia, Brazil, South, China and India. The current study differs as it was based on Kenya and as such providing country specific results and recommendations.

Puatwoe and Piabuo (2017) did a research on financial sector development and economic growth with emphasis on Cameroon. The study investigated the impact of financial development on economic growth in Cameroun based on time series data. Financial development was assessed using deposit/GDP, broad money as well as domestic credit to private sector. Based on Auto Regressive Distributive Lag approach (ARDL), the study documented that a short-run positive linkages between government expenditure, monetary mass (M2) and economic growth. The study further reported a short run inverse relationship between private investment, bank deposits and economic growth. The indicators of financial development in the long run depict a significant positive impact on economic growth. The study suggested that the financial reforms in Cameroon ought to be pushed towards boosting financial sector development thereby increasing its role in economic growth. The study notably was on Cameroun which based in the western part of Africa and based on different cultural and economic conditions as Kenya which is in the Eastern part of Africa.

Cherono (2013) researched on the effect of remittances on Kenya's private investments. The study additionally sought to find out the effect of financial sector development on the associations between remittance and private investments in Kenya. The research applied secondary data for the time duration 1980 to 2011. Multiple

regression analysis was used which modeled development indicators such as gross domestic product, initial level of investment as a function of nominal exchange rates, inflation, nominal interest rates, remittances, private sector credit and foreign direct investment. The study revealed that the interaction effect of financial sector development and remittance was significant and positive on investments. The study suggested that capital allocation by credit markets to Kenya's private investments can be complimented by remittances. The study though established the interaction effects of financial development on the relationship between remittances and private investment, the current study differs as it specifically focused on real estate investment in Kenya. Additionally, a key variable that is, portfolio investment was isolated in the previous study.

Mungai (2016) assessed the roles of financing options on real estate growth in Kenya while focusing on Nairobi Metropolitan. The study put forward it is challenging funding big real estate projects based on personal savings alone. As such, the need for the use of other sources of finance arises such as mortgage from financial institutions such as mortgage institutions, commercial banks or venture capital and equity. The study applied primary data which was sourced from registered developers in Nairobi Metropolis, Kenya. A sample size of eighty-one (81) was used based on a population of hundred (100) registered developers with Kenya Property Developers Association. The study established that credit from commercial banks and mortgage institutions had strong effect on real estate growth in Nairobi Metropolitan, Kenya. The study however applied primary data which can be marred by biasness unlike secondary data which was used in this study and is notably objective.

## **2.4 Conceptual Framework**

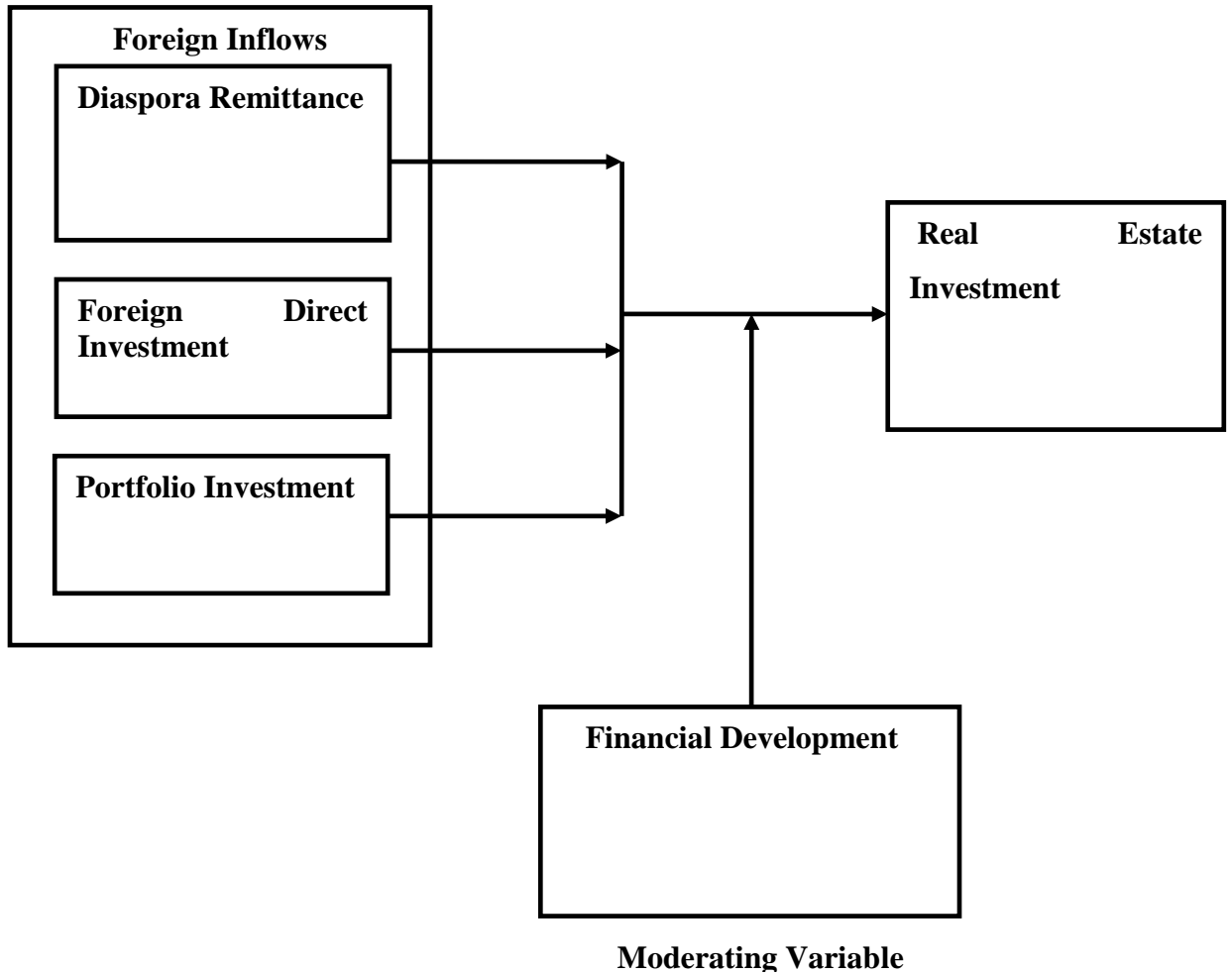
The presentation of the diagrammatic linkages between the study variables is depicted in the conceptual model of the study. Kothari (2011) indicates that a conceptual model captures the diagrammatic interactions of the associations of the variables in a research.

Figure 2.1

CONCEPTUAL FRAMEWORK

Independent Variables

Dependent Variable



Source: Researcher (2020)

Table 2.1

## OPERATIONALIZATION OF VARIABLES

| Variables                 | Measures   | Source (s)  |
|---------------------------|--|---|
| Diaspora Remittance       | Remittance (% of GDP)  | Cherono (2013), Juma (2014), Muiriri (2015)                     |
| Foreign Direct Investment | FDI(% of GDP)  | Nyaga (2013), Pisit (2014), Amondi (2016)                       |
| Portfolio Investment      | Net portfolio equity inflow (USD)  | Mehmet <i>et al.</i> (2014), Ezeanyeji and Ifeako (2019)        |
| Financial Development     | Domestic credit to private sector (% of GDP)   | Elie (2015), Tabi <i>et al.</i> (2011), Puatwoe & Piabuo (2017) |
| Real Estate investment    | Housing Stock (the supply of housing in each period as a percentage of urban population) | Juma (2014), Muiriri (2015), Hamouri (2020)                     |

**Source: Empirical Review (2020)**

## **2.5 Summary of Literature Review**

Under theoretical review, the first two theories illustrated the fact that remittances are as a result of pure altruistic as well as self-interest motives (Schiopu & Siegfried, 2006; Brown 2006; Lucas & Stark, 1985). The underlying theories on remittances are however conflicting as regards to which of the two provide best explanations on increased remittance flow. The two theirs are of the argument that both self-interest and altruistic motives serve as the factors accounting for movements in remittances that is increasing or decreasing remittance flow. Portfolio Theory rests on the view that an individual (investor) will pick the investment having the lowest risk given the same level of expected return. Investors assess risks based on the standard deviation or variations of investment.

Portfolio Theory holds the notion that the investment behavior of an individual is important not just in the context of individual investment but also in when looking at portfolio composition. A portfolio's risk takes into consideration the risk and return of each investment and the correlation of the investment with the other investments therein. Financial Intermediation Theory is hinged on the notion that financial systems perform a role of credit expansion to the various sectors of the economy where such credit is utilized for various purposes spanning from investment and consumption. Financial development relates to the establishments and expansions of markets, instruments and institutions which provide support for investments and growth processes (Adnan, 2012). It is an integral part of private sector development strategy which is geared towards the stimulation of growth in all spheres of the economy while reducing the costs incurred in the financial systems. The efficient allocation and expansion of credit to potential businesses and the private sector brings about improvements in industrial growth. Financial intermediaries

additionally bring about improvements in economic efficiency through overcoming the underlying frictions therein by channeling resources to the investments which are considered and established to be most efficient, providing households with benefits of scale economies in processing information which enables them identify investment projects as well as ensuring that businesses act in ways where the interests of savers are affected (Al-Jarrah, Al-Zu'bi, Jaara & Alshurideh, 2012; Cherono (2013).

From the empirical review, it can be concluded that based on the studies reviewed, real estate growth in the Kenya is largely driven by remittances among other macroeconomic variables. However, previous studies are characterized by various research gaps as some were based on other countries while most of the studies largely isolated other key aspect of remittance such as foreign direct investment and portfolio investment. Additionally, the moderating effect of financial development on the relationship between remittance and real estate growth which is one of the objectives of this study was ignored by previous studies. It is against this backdrop that the current study aims at establishing the effect of remittance on real estate investment in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter comprises of the study methodology procedures and processes to be used. Research methodology entails the statistical procedures in which research data is collected and analyzed. The current section provides the research design, statistical model for the research. The population, data collection, sampling, analyses of data and diagnostics tests to be used.

#### **3.2 Research Design**

Research design relates to the road map of a study which is applied in the collection of data, measuring of data and subsequent statistical analyses (Mugenda & Mugenda, 2013). It is regarded as the blueprint that is utilized by researchers in providing answers research problems (questions) (Kothari, 2011). Cooper and Schindler (2009) indicated that causal research design is concerned with the establishment of cause and effect associations between research variables. Notably, this is the thrust of this study as it aims at ascertaining the effect of independent variables on the dependent variables. Causal research design is therefore adequate as this study sought to evaluate the effect of remittance on real estate growth in Kenya. Also, the moderating effect of financial development on the relationship between remittances and real estate investment were investigated.

#### **3.3 Target Population**

Target population relates to the section or group of a researcher's interest in a study (Kothari, 2011). Population is a research entails group of objects, institutions or individuals

upon which data will be sourced for purposes of making inferences (Mugenda & Mugenda, 2013). The study focuses on the real estate industry of Kenya; therefore the population comprises of the seventy eight (78) real estate firms in Kenya. These firms therefore represent the real estate industry of Kenya where data was based on Housing Stock (the supply of housing in each period as a percentage of urban population). The research was done using a census approach. This is as the data to be used on real estate is aggregated as it covers the entire real estate industry of Kenya. Data on the study variables was sourced from the Central Bank of Kenya, World Bank Development Indicators and Kenya National Bureau of Statistics.

### **3.4 Source of Data and Methods of Data Collection**

Data collection entails the processes of collecting empirical evidence that is utilized in acquiring additional or new knowledge about an underlying problem and in turn facilitate the provision of answers to research questions (Mugenda & Mugenda, 2013). Secondary time series data was used in this study. Secondary data is advantageous because it can be referred to in the future. An approval for data collection was obtained from KCA University and then a research permit from NACOSTI was sought so as to embark on the process of data collection.

Secondary time series data was collected based on an annualized form for the period 1990 to 2019 which translates to a 30-year period. The period is ideal as it captures the latest data which is for the year 2019. Furthermore, as indicated by Verbeek (2012), the rule of thumb (threshold) for time series data is a period of 30 and above. Data for this study was collected on the study variables namely: diaspora remittance, foreign direct

investment, portfolio investment, financial development and real estate investment. The research data was sourced from the reports of Kenya National Bureau of Statistics, Central Bank of Kenya, as well as World Bank reports. A secondary data guide was used in the collection of data.

### **3.5 Data Analysis**

The data analysis was mainly quantitative as it applied descriptive and inferential analyses. The descriptive analyses provided the basic features of the study variables, these features are mean, trends and standard deviations (Verbeek, 2012). Inferential analysis based on time series regression was carried out for purposes of testing the research hypotheses. The inferential statistics therefore was applied to ascertain the effect of remittances on real estate investment in Kenya.

The regression analyses were considered based on the p-value method where 0.05 percent significance level was applied, that is 95 percent confidence interval. The analysis was done using E-views statistical software. Various diagnostic tests were also done as documented in section 3.7. The regression analyses were based on two models, that is, direct effect and moderating effect model. The regression equation for the direct effect model takes the following form:

$$REI_t = \beta_0 + \beta_1 DR_t + \beta_2 FDI_t + \beta_3 PI_t + \epsilon_{it} \dots \dots \dots 3.1$$

**Where:**

REI = Real Estate Investment

$\beta_0$  = Constant

DR = Diaspora Remittance

FDI = Foreign Direct Investment

PI = Portfolio Investment

$\beta_1$  to  $\beta_3$  = Regression coefficients

t = time series (1990-2019)

$\epsilon_{it}$  = Error term

The moderation effect model takes the following form:

$$REI_t = \beta_0 + \beta_1 DR_t + \beta_2 FDI_t + \beta_3 PI_t + \beta_4 FD * DR_t + \beta_5 FD * FDI_t + \beta_6 FD * PI_t + \epsilon_{it} \dots \dots \dots 3.2$$

**Where:**

REI = Real Estate Investment

$\beta_0$  = Constant

DR = Diaspora Remittance

FDI = Foreign Direct Investment

PI = Portfolio Investment

FD\*DR= Interaction between Financial Development and Diaspora Remittance

FD\*FDI= Interaction between Financial Development and Foreign Domestic Investment

FD\*PI= Interaction between Financial Development and Portfolio Investment

$\beta_1$  to  $\beta_3$ = Regression coefficients

\*= Interaction term

t= Time series (1990-2019)

$\epsilon_{it}$ = Error term

### **3.6 Diagnostic Tests**

The study undertook various pre and post estimation (diagnostic) tests so as to ensure that the research data and analyses methods are in order. The tests were done because violation of the underlying assumptions of the tests would result in inefficient, inconsistent and biased inferences (Wooldridge, 2013). The tests include test for serial correlation (Breusch Godfrey Serial correlation LM), stationarity (Augmented Dickey-Fuller) test, Heteroscedasticity (Breusch Pagan Godfrey) test, multicollinearity (VIF) test, model specification (Ramsey-Reset) test.

Serial correlation test was done using Breusch Godfrey Serial correlation LM based on a threshold of 0.05. The null hypothesis states that there is no first order correlations. A p-value below 0.05 implies the rejection of the null hypothesis. Stationarity tests were conducted which is important in a time series analysis as the data set is required to be

stationary. The tests done were Augmented Dickey-Fuller test and Phillips-Perron test. In the case where all the variables are stationary at levels  $I(0)$ , then the Ordinary Least Squares (OLS) or Vector Autoregressive models (VAR) can be used. In the case where all the variables are stationary at first difference  $I(1)$ , the Vector Error Correction Model (VECM) is used. Given that the variables were a mixture of  $I(0)$  and  $I(1)$ , that is with some being stationary at levels and some stationary at first difference, the appropriate procedure was the Autoregressive Distributed Lag (ARDL) model. This was used based on co-integration approach.

Heteroscedasticity test was done using Breusch Pagan Godfrey test which was based on a threshold of 0.05 significance level. Multicollinearity test was also conducted using the Variance Inflation Factor (VIF) where a threshold of 10 was used. As such, a VIF value of less than 10 means there is no severe multicollinearity, otherwise, a problem of multicollinearity exists. Model specification test was carried out based on Ramsey-Reset test with a threshold of 0.05. The null hypothesis states that the model is well specified and there are no omitted variables.

## CHAPTER FOUR

### PRESENTATION AND INTERPRETATION AND ANALYSIS OF DATA

#### 4.1 Introduction

This section discussed various processes employed in the analysis of the data collected, their presentation and interpretation. First, the summary statistics of the variables for the study is discussed to describe the basic features of the data. Next, the pre-estimation tests results are considered. Then, the models were estimated and the results discussed.

#### 4.2 Descriptive Analysis

The descriptive statistics for the variables employed in the study are presented in table 4.1.

**Table 4.1: DESCRIPTIVE STATISTICS**

|                        | Real Estate Investment | Diaspora Remittance | Foreign Direct Investment | Log of Portfolio Investment | Financial Development |
|------------------------|------------------------|---------------------|---------------------------|-----------------------------|-----------------------|
| Mean                   | 2.3347                 | 2.1623              | 0.9427                    | 6.2900                      | 22.3433               |
| Maximum                | 6.1800                 | 4.5400              | 3.4600                    | 8.9800                      | 27.3000               |
| Minimum                | 1.7600                 | 0.3900              | 0.0400                    | 0.0000                      | 18.4000               |
| Standard Deviation     | 1.1217                 | 1.0474              | 0.9630                    | 2.2963                      | 2.9821                |
| Number of Observations | 30                     | 30                  | 30                        | 30                          | 30                    |

**Source:** Researcher, 2020.

From table 4.1 the mean of Real Estate Investment is 2.3347 and the mean of Diaspora Remittance is 2.1623. On the other hand, the mean for Foreign Direct Investment, log of Portfolio Investment and Financial Development is 0.9427, 6.19 and 22.34 respectively. The largest dispersion from the mean, measured by the standard deviation is that recorded for Financial Development followed by the log of Portfolio Investment then,

Real Estate Investment. The least deviation around the mean is that for Foreign Direct Investment equal to 0.963.

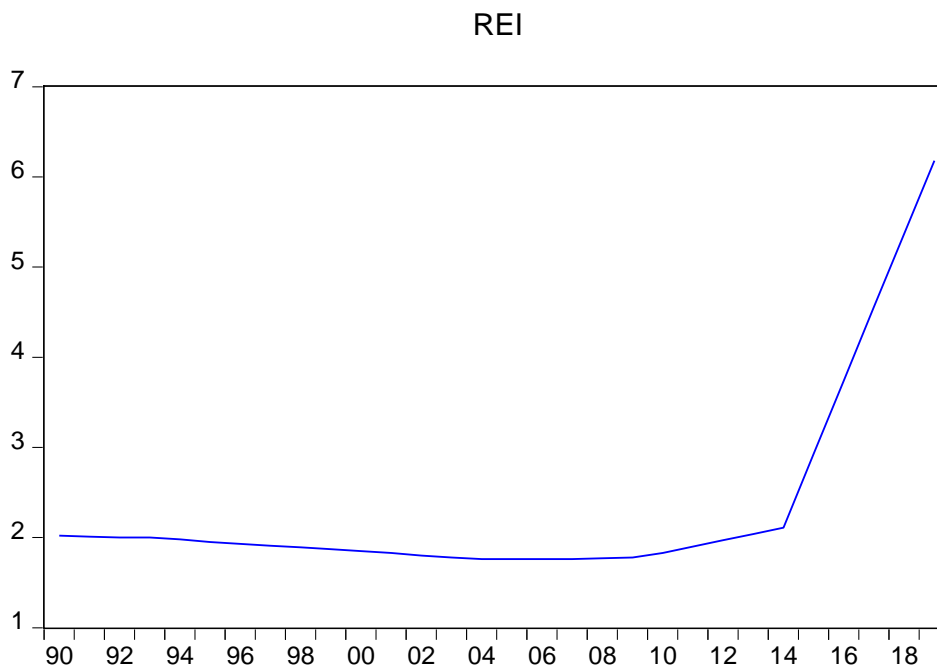
### 4.3 Trend Analysis

The trend analysis for the various research variables are contained in this section. Furthermore, supporting discussion are provided in view of these trends.

#### 4.3.1 Real Estate Investment

The trend of real estate investment as measured by housing Stock (the supply of housing in each period as a percentage of urban population) is presented in this section. Figure 4.1 shows the trend of Real Estate Investment in Kenya from 1990 to 2019

**Figure 4.1: TRENDS OF REAL ESTATE INVESTMENT IN PERCENTAGES FROM 1990 TO 2019**



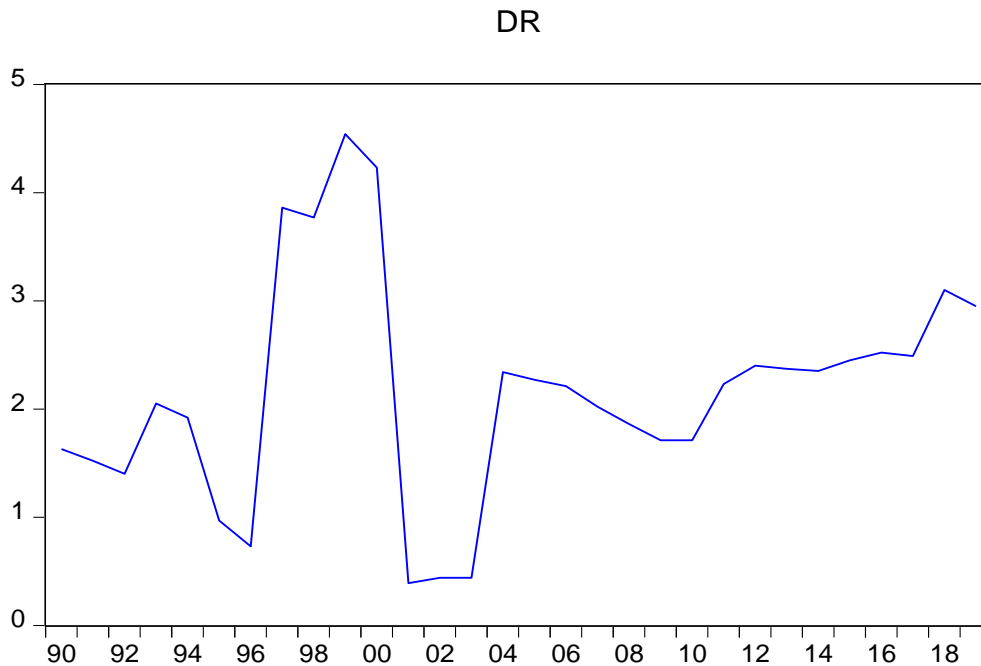
**Source: Study Data (2020)**

Figure 4.1 shows that Real Estate Investment in Kenya was relatively stable from 1999 to 2009 albeit falling. The global financial crisis of 2007 and 2008 notably had minimal

effects on real estate investment in Kenya. Then, Real Estate Investment recorded marginal improvement from 2009 to 2014. This trend could be attributed to policy operation of Mortgage, interest rate, population, renting cost, per capita income and economic growth. As observed by Kamin, Turner and Van't Dack (1998), the monetary and financial circumstances of a nation are important motivations to happenings related to real estate investment. Beyond 2014 there was remarkable increasing growth in Real Estate Investment in Kenya. The sharp increase reported may be associated with political stability, improvements in economic growth and the relatively low-interest rate which increases the demand for real estate investment.

#### ***4.3.2 Diaspora Remittance***

The trend on diaspora remittance for Kenya is documented in this section. Figure 4.3 shows the trend of Diaspora Remittance in Kenya from 1990 to 2019.



**Figure 4.2: TRENDS OF DIASPORA REMITTANCE (% OF GDP) FROM 1990 TO 2019**

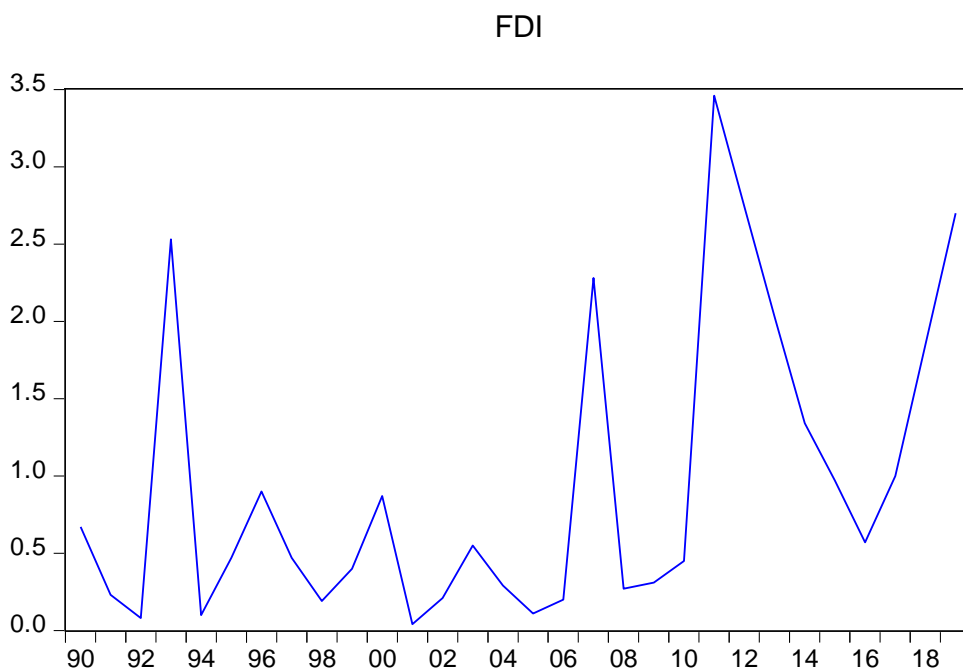
**Source: Study Data (2020)**

Diaspora remittance in Kenya has oscillated over time. It declined from 1.63% of GDP in 1990 to 1.4% of GDP in 1992. Diaspora remittance then rose to 2.05% of GDP in 1993 and immediately began to fall afterwards until it reached 0.73% of GDP in 1996. There was a remarkable rise in Diaspora remittance over the period 1996 to 1999 where it peaked at 4.54% of GDP. However, the period 2001 to 2003 witnessed the lowest ebb in Diaspora remittance; in all cases below 0.5% of GDP. It then rose to 2.34% of GDP in 2004 and since then hovered between 1.76% and 6.18% of GDP. A probable reason for the oscillating movement in Diaspora remittance might not be far from unreported statistics, economic conditions, and economic fundamentals of Kenya and global emigration policy. Notably, a decrease was witnessed in the periods 2007 to 2008 which can be attributed to

the global financial crisis. As such, the global financial crises of 2007/2008 had adverse effects on the inflow of remittances into Kenya.

### 4.3.3 Foreign Direct Investment

The trend on foreign direct investment as measured by a percentage of Gross Domestic Product is contained in this section. The trend in Foreign Direct Investment for Kenya is as shown in Figure 4.3.



**Figure 4.3: TRENDS OF FOREIGN DIRECT INVESTMENT (% OF GDP) IN KENYA FROM 1990 TO 2018**

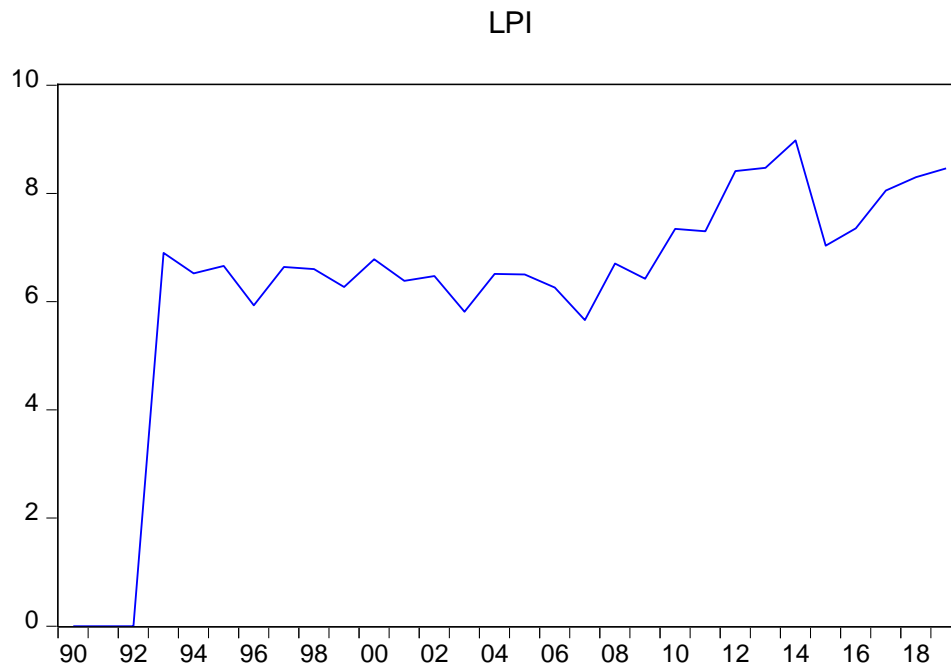
**Source: Study Data (2020)**

The trend in foreign direct investment in Kenya shows a decrease in 1990 to 1992 which was 0.1% of GDP and a sharp increase of 2.5% in 1993. A similar decrease was witnessed in 1994 as foreign direct investment was reported at 0.1 % of Gross Domestic Product. Similar to the trend in Diaspora remittance, Foreign Direct Investment oscillated

during the period 1990 to 2019 though, the movement in the later was more volatile. Sizable Foreign Direct Investment was reported in 1993, 2007, 2011, 2012 and 2019 of 2.53% of GDP, 2.28% of GDP, 3.46% of GDP, 2.74% of GDP and 2.7% of GDP respectively.

#### **4.3.4 Portfolio Investment**

This section presents the trend on portfolio investment as measured by natural logs. Furthermore, the trend in Log of Portfolio Investment in Kenya for the period 1990 to 2019 is presented in Figure 4.4.



**Figure 4.4: Trends of log portfolio investment in Kenya from 1990 to 2018**

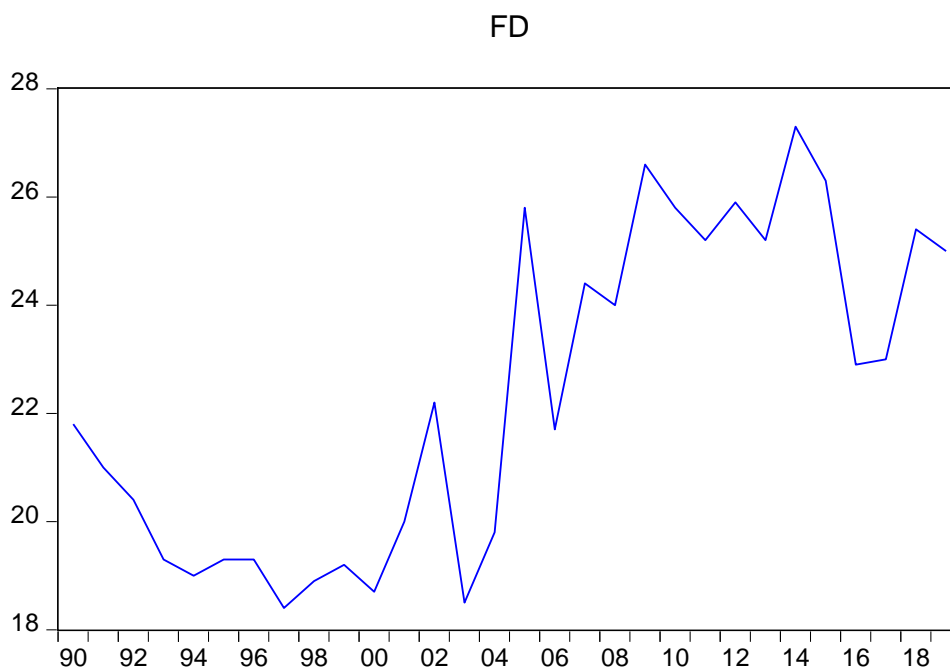
**Source: Study Data (2020)**

The log of portfolio investment trend started positively from 1992 but, oscillated since then. Nonetheless, the movement of portfolio investment was less volatile. From 1993 to 2007, the trend in portfolio investment relatively fluctuated within the same

magnitude. Overall, there has been some growth in portfolio investment in Kenya over time. Notably, in the case of portfolio investment, the global financial crisis had some minimal effects on portfolio investment for Kenya. The reasons for this growth could be attributed to the stability in the governance, labor size, interest rate, and relative peace.

#### 4.3.5 Financial development

This section presents the trend on financial development. Furthermore, the trend in financial development for Kenya for the period 1990 to 2019 is presented in Figure 4.5



**Figure 4.5: TRENDS OF FINANCIAL DEVELOPMENT IN KENYA FROM 1990 TO 2019**

**Source: Study Data (2020)**

Financial Development performed well in Kenya from 1990 to 2019. Between 1990 and 2005, domestic credit to the private sector as a percentage of GDP oscillated between 18.5% and 22.9%. From 2005 to 2019, domestic credit to the private sector as a percentage of GDP oscillated between 18.7% and 27.2%.

#### 4.4 Pre-estimation Test Results

The pre-estimation test carried out was mainly to ascertain the unit root properties of the data. This was necessary in order to inform the right course of action. To test whether or not the individual variables were stationary the Augmented Dickey Fuller (ADF) and Phillips- Perron (PP) unit root tests were done and the 5% level of significance was considered. The results are presented in Table 4.2.

**Table 4.2: RESULTS OF THE ADF AND PP STATIONARITY TESTS**

| Variable                           |                            | ADF Test       |                |  | PP Test        |                |  |
|------------------------------------|----------------------------|----------------|----------------|--|----------------|----------------|--|
|                                    |                            | Test statistic | Critical value | Remark   | Test statistic | Critical value | Remark   |
| <b>Real Estate Investment</b>      | Level                      | 0.0321         | 2.992          | Stationary at 1 <sup>st</sup> diff. integrated of order one I(1) | 5.0981         | 2.967          | Stationary at level. integrated at order zero I(0)               |
|                                    | 1 <sup>st</sup> Difference | 5.9919         |                |  | 0.2007         |                |  |
| <b>Diaspora Remittance</b>         | Level                      | 3.8179         | 2.976          | Stationary at level. integrated of order zero I(0)               | 2.4612         | 2.967          | Stationary at 1 <sup>st</sup> diff. integrated of order one I(1) |
|                                    | 1 <sup>st</sup> Difference | 4.7039         |                |  | 9.0670         |                |  |
| <b>Foreign Direct Investment</b>   | Level                      | 3.4233         | 2.968          | Stationary at level. integrated of order zero I(0)               | 3.4024         | 2.967          | Stationary at level. integrated of order zero I(0)               |
|                                    | 1 <sup>st</sup> Difference | 3.6638         |                |  | 15.7738        |                |  |
| <b>Log of Portfolio Investment</b> | Level                      | 3.0461         | 2.968          | Stationary at level. integrated of order zero I(0)               | 3.9148         | 2.967          | Stationary at level. integrated of order zero I(0)               |
|                                    | 1 <sup>st</sup> Difference | 5.9909         |                |  | 6.0386         |                |  |

**Source:** Researcher, 2020.

The null hypothesis for both the ADF and PP unit root tests has it that the series has a unit root. The ADF results revealed that Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment are stationary at level. This is because in all cases, the test statistics were greater than the critical values at 5% level of significance. In contrast, Real Estate Investment only became stationary at first difference.

For the PP unit root test, the results showed that at level, the test statistics for Real Estate Investment, Foreign Direct Investment, and Log of Portfolio Investment were 5.0981, 3.4024, and 3.9148 respectively. These exceed the critical value of 2.967 at 5% level of significance. Therefore, the series were considered not to have unit root. On the other hand, the test statistic for Diaspora Remittance at level for the PP unit root test was 2.4612. Hence, it was not stationary at level. However, it became stationary after taking its first difference; the test statistic of 9.0670 is greater than critical value of 2.967 at 5% level of significance.

Overall, the series (Real Estate Investment, Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment) are a mixture of  $I(0)$  and  $I(1)$ . This therefore necessitated the use of Autoregressive Distribute Lag (ARDL) bounds testing technique to estimate the relationship between the variables. However, prior to the estimation of the ARDL model it was necessary to test for co-integration among the variables. This was done using the ARDL bound testing for co-integration and the results is as shown in table 4.3

**Table 4.3: RESULTS OF THE ARDL BOUNDS TEST FOR CO-INTEGRATION**

Null hypothesis: no level relationship

| Test Statistic | Value    | K |
|----------------|----------|---|
| F-statistic    | 5.298603 | 3 |

Critical values Bounds

| Significance | I(0) | I(1) |
|--------------|------|------|
| 10%          | 2.37 | 3.20 |
| 5%           | 2.79 | 3.67 |
| 2.5%         | 3.15 | 4.08 |
| 1%           | 3.65 | 4.66 |

**Source:** Researcher, 2020

The null hypothesis for the ARDL Bounds Test for Co-integration holds that there is no long run relationship among the variables. Given the result on table 4.3 where the computed F-statistics (5.299) exceeds the upper bound I(1) at 5% level of significance, the null hypothesis that there is no long run relationship (no co-integration) among the variables was rejected. Therefore, it was established that there exists a significant long-run relationship between Real Estate Investment, Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment.

#### **4.5 Diagnostic Test Results**

This section discusses the results from the different diagnostic tests done to ascertain whether the estimation procedures employed align with the conventional Ordinary Least Square assumptions. These tests include that for multicollinearity, model specification, normality of residuals, heteroskedasticity and serial correlation.

#### 4.5.1 Multicollinearity Test Result

The variance inflation factors (VIF) test was used to check for the presence of multicollinearity among the independent variables and the results are as shown in Table 4.4.

**Table 4.4: MULTICOLLINEARITY TEST: VARIANCE INFLATION FACTORS**

| Variable                         | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------------------------------|----------------------|----------------|--------------|
| Real Estate Investment (-1)      | 0.020795             | 428.7275       | 60.33296     |
| Real Estate Investment (-2)      | 0.088473             | 1521.411       | 131.3973     |
| Real Estate Investment (-3)      | 0.050832             | 756.8324       | 31.24006     |
| Diaspora Remittance              | 0.000326             | 7.226645       | 1.363257     |
| Foreign Direct Investment        | 0.000775             | 4.980789       | 2.460853     |
| Foreign Direct Investment (-1)   | 0.000905             | 5.704231       | 2.802448     |
| Foreign Direct Investment (-2)   | 0.001001             | 5.838141       | 3.073850     |
| Foreign Direct Investment (-3)   | 0.000790             | 4.506099       | 2.468426     |
| Foreign Direct Investment (-4)   | 0.000637             | 3.641727       | 1.984925     |
| Log of Portfolio Investment      | 0.002285             | 406.7546       | 6.617694     |
| Log of Portfolio Investment (-1) | 0.002563             | 447.7748       | 6.632136     |
| Log of Portfolio Investment (-2) | 0.000255             | 42.04940       | 2.184953     |
| C                                | 0.176823             | 633.1990       | NA           |

**Source:** Researcher, 2020

The results in Table 4.4 shows that the regressors are not highly correlated. The centered VIF and uncentered VIF are not very high. Moreover, in all cases the values of the VIF coefficient variance is less than 1.

#### 4.5.2 Result of the Model Specification Test

The Ramsey RESET test was conducted to check whether the model estimated was correctly specified. The result of the test is presented in Table 4.5.

**Table 4.5. MODEL SPECIFICATION TEST: RAMSEY RESET TEST**

|             | Value    | df      | Probability |
|-------------|----------|---------|-------------|
| t-statistic | 1.894865 | 12      | 0.0825      |
| F-statistic | 3.590513 | (1, 12) | 0.0825      |

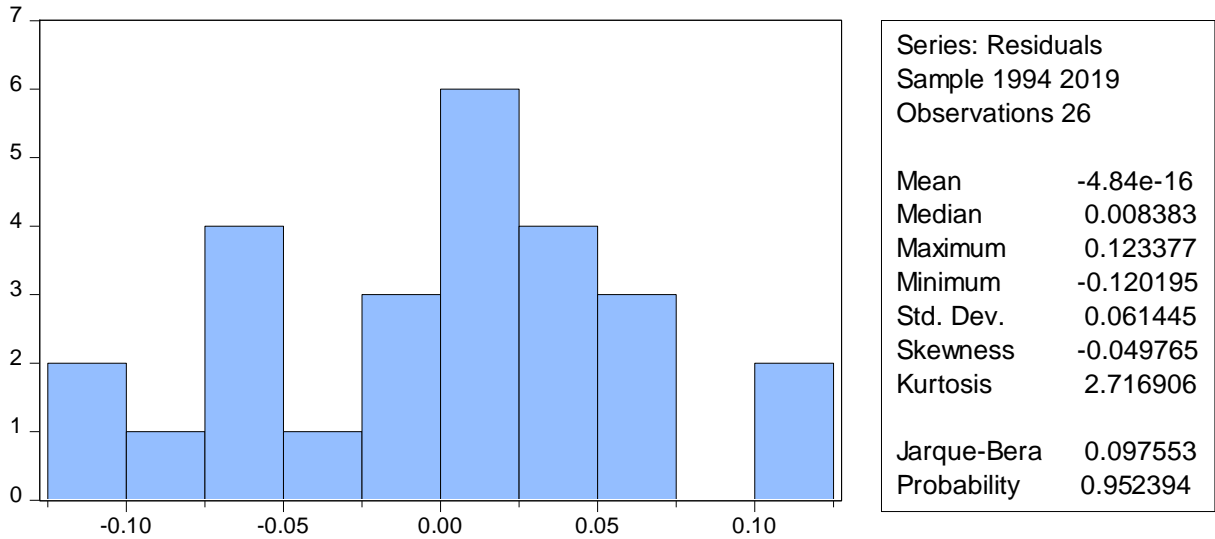
| F-test summary:  | Sum of Sq. | df | Mean Squares |
|------------------|------------|----|--------------|
| Test SSR         | 0.021738   | 1  | 0.021738     |
| Restricted SSR   | 0.094388   | 13 | 0.007261     |
| Unrestricted SSR | 0.072650   | 12 | 0.006054     |

**Source:** Researcher, 2020

The null hypothesis of the Ramsey-reset test for model specification has it that the model well specified and there are no omitted variables. Given that the probability values (0.0825) of the test is greater than 0.05, the study fails to reject the null hypothesis implying that the model is correctly specified.

#### 4.5.3 Normality Test Result

Normality test was carried out to check whether or not the residuals of the model estimated were normally distributed. To achieve this, the Jarque-Bera Test was considered and the result presented in figure 4.6.



**Figure 4.6: JARQUE-BERA NORMALITY TEST RESULT**

**Source:** Researcher, 2020

The null hypothesis of the Jarque-Bera test states that the residuals are normally distributed. The probability value of the Jarque-Bera test statistic is 0.9523, greater than 0.5. Therefore, the null hypothesis could not be rejected. Hence, the residuals were normally distributed.

**4.5.4 Heteroscedasticity Test Result**

The Breusch-Pagan-Godfrey Heteroscedasticity Test was done to verify whether or not the error terms have constant variance. The result of the test is presented in Table 4.6.

**Table 4.6: BREUSCH-PAGAN-GODFREY HETEROSCEDASTICITY TEST**

|                     |          |                      |        |
|---------------------|----------|----------------------|--------|
| F-statistic         | 2.276345 | Prob. F(12,13)       | 0.0778 |
| Obs*R-squared       | 17.61626 | Prob. Chi-Square(12) | 0.1278 |
| Scaled explained SS | 3.780683 | Prob. Chi-Square(12) | 0.9871 |

**Source:** researcher, 2020

Given that the probability value of the F-statistic is greater than 0.05, the null hypothesis that the error terms are homoscedastic was upheld. That is, the residuals have constant variance.

#### **4.5.5 Serial Correlation Test Result**

As part of the diagnostic tests for the residuals of the estimated model, it was also important to check for serial correlation. To this end, the Breusch-Godfrey Serial Correlation LM Test was done and the result presented in Table 4.7.

**Table 4.7: BREUSCH-GODFREY SERIAL CORRELATION LM TEST**

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.155453 | Prob. F(2,11)       | 0.8579 |
| Obs*R-squared | 0.714668 | Prob. Chi-Square(2) | 0.6995 |

**Source:** Researcher, 2020

The null hypothesis of the Breusch-Godfrey holds that there is no first order serial correlation. Since, the probability value for the F-statistic is greater than 0.05 the null hypothesis is not rejected. By implication, there is absence of serial correction in the model.

## **4.6 Time Series Analysis**

To determine the effect of foreign inflows on Real Estate Investment in Kenya the ARDL estimation approach was considered. This was informed by the results gotten from the test for unit root and that for co-integration in section 4.3. The results of the unit root tests revealed that variables were a mixture of I(0) and I(1). Also, the result of the test for Co-integration indicated that the variables were co-integrated. These justify the ARDL estimation method. Furthermore, in line with Akims (2016), the Autoregressive Distributed Lag (ARDL) model, unlike Ordinary Least Squares (OLS) or Vector Autoregressive

models (VAR) and Vector Error Correction Model (VECM) which have restrictions to be used where all the variables are stationary at levels I(0) and where all the variables are stationary at first difference I(1) respectively, can be applied were a mixture of I(0) and I(1), that is with some being stationary at levels and some stationary at first difference, which is the case for this study. This was used based on co-integration approach. The result from the estimation is presented in Table 4.8.

**Table 4.8: ARDL CO-INTEGRATION AND LONG-RUN FORM**

| <b>Cointegration Form</b>  |                    |                       |                    |              |
|--|--------------------|-----------------------|--------------------|--------------|
| <b>Variable</b>  | <b>Coefficient</b> | <b>Std. Error</b>     | <b>t-Statistic</b> | <b>Prob.</b> |
| D(Real Estate Investment (-1))   | 0.637866           | 0.117917              | 5.409455           | 0.0001       |
| D(Real Estate Investment (-2))   | 0.365997           | 0.129712              | 2.821621           | 0.0144       |
| D(Foreign Direct Investment)   | -0.052062          | 0.018151              | -2.868325          | 0.0132       |
| D(Foreign Direct Investment (-1))  | -0.077872          | 0.022523              | -3.457426          | 0.0042       |
| D(Foreign Direct Investment (-2))  | -0.095674          | 0.021702              | -4.408463          | 0.0007       |
| D(Foreign Direct Investment (-3))  | -0.087661          | 0.018814              | -4.659352          | 0.0004       |
| D(Log of Portfolio Investment)   | -0.105522          | 0.030018              | -3.515291          | 0.0038       |
| D(Log of Portfolio Investment (-1))  | -0.034613          | 0.013019              | -2.658631          | 0.0197       |
| CointEq(-1)*   | -0.037290          | 0.006335              | -5.885976          | 0.0001       |
| R-squared  | 0.964633           | Mean dependent var    |                    | 0.160769     |
| Adjusted R-squared   | 0.947989           | S.D. dependent var    |                    | 0.326728     |
| S.E. of regression   | 0.074513           | Akaike info criterion |                    | -2.088257    |
| Sum squared resid  | 0.094388           | Schwarz criterion     |                    | -1.652762    |
| Log likelihood   | 36.14734           | Hannan-Quinn criter.  |                    | -1.962850    |
| Durbin-Watson stat   | 2.209417           |                       |                    |              |
| <b>Long-run Form</b>   |                    |                       |                    |              |
| <b>Variable</b>  | <b>Coefficient</b> | <b>Std. Error</b>     | <b>t-Statistic</b> | <b>Prob.</b> |
| Diaspora Remittance  | -0.022087          | 0.495737              | -0.044554          | 0.9651       |
| Foreign Direct Investment  | 1.943145           | 4.927679              | 0.394333           | 0.6997       |
| Log of Portfolio Investment  | 1.791038           | 3.998446              | 0.447934           | 0.6616       |
| C  | -10.16491          | 26.10332              | -0.389411          | 0.7033       |
| Cointeq = Real Estate Investment - (-0.0221* Diaspora Remittance + 1.9431* Foreign Direct Investment + 1.7910* Log of Portfolio Investment - 10.1649 ) |                    |                       |                    |              |

**Source:** Researcher, 2020

The coefficient of the error correction term is negative and less than one. Specifically, the coefficient of the error term has a value of -0.0373. It is also statistically significant since its probability value is less 0.05. This finding has three important implications. First, it confirms the presence of a stable or strong long run relationship between Real Estate Investment and Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment as previously established by the bounds test result reported in section 4.3. Secondly, the value (-0.037) implies that about 3.7% of short run's disequilibrium arising from the previous year's shock is corrected within the current year. Lastly, the negative sign suggests the presence of a unidirectional causality in the long run from the explanatory variables to dependent variable.

The adjusted coefficient of determination ( $R^2$ ) shows that 95% of total variation in Real Estate Investment is explained by changes in Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment jointly. Also, the value of the adjusted  $R^2$  implies that the model has a good fit.

The short run model reveals that the coefficients of the lagged values of Real Estate Investment, Foreign Direct Investment, and Log of Portfolio Investment are statistically significant at 5% level. This implies that the short run past values of the dynamic variables have effect on the current value of Real Estate Investment in the short-run in Kenya. For the long run model, the coefficients of Diaspora Remittance, Foreign Direct Investment, and Log of Portfolio Investment were all not statistically significant.

## **4.7 Test of Hypotheses**

### **4.7.1 Effect of Diaspora Remittance on Real Estate Investment in Kenya**

*H<sub>01</sub>: Diaspora Remittance has no significant effect on Real Estate Investment in Kenya*

The first objective of the study sought to examine the effect of Diaspora remittance on real estate investment in Kenya. The null hypothesis in view of the specific objective stated that diaspora remittance has no significant effect on real estate investment in Kenya. In the short run, Diaspora remittance has significant effect on Real Estate Investment in Kenya. Similarly, the long run coefficient for Diaspora remittance (-0.0220) has a probability value of 0.9651. Hence, the null hypothesis that Diaspora remittance has no significant effect on Real Estate Investment cannot be rejected in the long run.

In general, in both short run and long run, the results suggest that within the sample period, Diaspora remittance is not a determinant of Real Estate Investment in Kenya. This finding is unlike that obtained by Hamouri (2020) for Jordan. In which case, remittances positively and significantly impacted on Jordanian real-estate market. Nonetheless, the finding is similar to Muiriri's (2015) for Kenya. A possible explanation for the insignificant effect of Diaspora remittance on Real Estate Investment in Kenya may be that households receiving Diaspora remittances spend a large chunk of the remittances on other expenses such as food, education and health. Fayomi *et al.*, (2015) indicated that diaspora remittance increases consumption level of households. Therefore, funds received from abroad may not entirely be channeled into real estate investment but rather household's consumption.

#### ***4.7.2 Effect of foreign direct investment on Real Estate Investment in Kenya***

*H<sub>02</sub>: Foreign Direct Investment has no significant effect on Real Estate Investment in Kenya.*

The second objective of the study was to establish the effect of Foreign Direct Investment on Real Estate Investment in Kenya. A null hypothesis in view of the specific objective stated that foreign direct investment has no significant effect on real estate investment in Kenya was tested. To ascertain this, the coefficients of Foreign Direct Investment, and that of its lagged values and their probability values were considered in the short run. The coefficient of Foreign Direct Investment, and its probability value was also considered for the long run estimates.

In the short run, Foreign Direct Investment has a negative and statistical significant effect on Real Estate Investment in Kenya. A 1% increase in FDI would cause 0.05% decrease in Real Estate Investment. Moreover, A 1% increase in FDI one, two and three prior periods would lead to a decline in Real Estate Investment in the current period by 0.08%, 0.1% and 0.09% respectively. This finding concurs with that of Cherono (2013) for Kenya where it was established that foreign direct investment significantly affects private investments. Nevertheless, the results of negative effects of Foreign Direct Investment on Real Estate Investment goes contrary to expectation.

In the long-run, although as expected, the coefficient of Foreign Direct Investment is positive (1.9431), its probability value (0.6997) which is greater than 0.05. Therefore, the null hypothesis that Foreign Direct Investment has no significant effect on Real Estate Investment in the long run is accepted. This suggests that Foreign Direct Investment has no long run effects on Real Estate Investment in Kenya. Therefore, the null hypothesis

that Foreign Direct Investment has no significant effect on Real Estate Investment in Kenya is rejected for the short run but, accepted for the long run.

#### **4.7.3 Effect of portfolio investment on Real Estate Investment in Kenya**

*H<sub>03</sub>: Portfolio Investment has no significant effect on Real Estate Investment in Kenya.*

The third objective of the study was interested in investigating the effect of Portfolio Investment on Real Estate Investment in Kenya. The short run estimates revealed that the coefficient of the Log of Portfolio Investment (-0.1055) has a probability value of 0.0038 which is less than 0.05. Also, the coefficient of the Log of Portfolio Investment lagged once (-0.0346) has a probability value that is less than 0.05. Therefore, in both cases, the Log of Portfolio Investment has negative and significant effect on Real Estate Investment in Kenya. Specifically, a 1% increase in Log of Portfolio Investment would lead to a 0.11 percent decrease in Real Estate Investment, and a 1% increase in Log of Portfolio Investment one period ago would decrease Real Estate Investment by 0.03%. The finding is similar to Mungai's (2016) for Kenya where equity financing was found to significantly affect the real estate investment in Nairobi Metropolis.

The long-run estimates show that the coefficient of Log of Portfolio Investment is 1.7910 with a probability value of 0.6616. Although this suggests a positive relationship between Log of Portfolio Investment and Real Estate Investment, it is not statistical significant. Hence, for Kenya, in the long run, portfolio investment alone does not determine Real Estate Investment in the long run.

#### 4.7.4 Moderating Effect of Foreign Inflows on Real Estate Investment in Kenya

*H<sub>04</sub>: Financial Development has no significant Moderating Effect on the Relationship between Foreign Inflows and Real Estate Investment in Kenya*

The fourth objective sought to assess the moderating effect of financial development on the relationship between foreign inflows and real estate investment in Kenya. To achieve this, equation 3.2 was estimated by the Dynamic Least Square method (DOLS). The result from the estimated model is presented in Table 4.10.

**Table 4.9: COINTEGRATION FORM OF DYNAMIC LEAST SQUARE (DOLS)**

| Variable                           | Coefficient | Std. Error         | t-Statistic | Prob.    |
|------------------------------------|-------------|--------------------|-------------|----------|
| <b>Diaspora Remittance</b>         | -8.458827   | 3.795119           | -2.228870   | 0.1556   |
| <b>Foreign Direct Investment</b>   | 1.823070    | 0.394535           | 4.620809    | 0.0438   |
| <b>Log of Portfolio Investment</b> | 6.080154    | 0.932268           | 6.521897    | 0.0227   |
| <b>FDDR</b>                        | 0.319627    | 0.148773           | 2.148420    | 0.1647   |
| <b>FDFDI</b>                       | -0.088552   | 0.021344           | -4.148723   | 0.0535   |
| <b>FDLPI</b>                       | -0.131565   | 0.045985           | -2.861028   | 0.1035   |
| <b>C</b>                           | -14.81982   | 1.807275           | -8.200088   | 0.0145   |
| R-squared                          | 0.999164    | Mean dependent var |             | 2.215926 |
| Adjusted R-squared                 | 0.989136    | S.D. dependent var |             | 0.901154 |
| S.E. of regression                 | 0.093926    | Sum squared resid  |             | 0.017644 |
| Long-run variance                  | 0.004332    |                    |             |          |

**Source:** Researcher, 2020

The Cointegration Dynamic Least Square estimation is a long run cointegration analysis. From the result in Table 4.9, Financial Development has no significant moderating effect on the relationship between Diaspora Remittance and Real Estate Investment. This is

because the probability value of the coefficient of the interaction of Financial Development and Diaspora Remittance is greater than 0.05. In this case, the null hypothesis was accepted.

The interaction between Financial Development and Foreign Direct Investment (FDFDI) has a coefficient of -0.0886 and a probability value of 0.05. Therefore, the null hypothesis that Financial Development has no significant moderating effect on the relationship between Foreign Direct Investment and Real Estate Investment is only rejected at 10% level of significance. The joint increase in the coefficient of Financial Development and Foreign Direct Investment of 1% reduces Real Estate Investment by 0.09%. Thus, this finding provides evidence of a moderating effect of Financial Development on the relationship between Foreign Direct Investment and Real Estate Investment in Kenya. However, contrary to expectation, such moderating effect is negative.

The interaction between Financial Development and Log of Portfolio Investment (FDLPI) has a coefficient of -0.1316 and a probability value of 0.1035. Since the probability value is greater 0.05, the null hypothesis that Financial Development has no significant moderating effect on the relationship between Portfolio Investment and Real Estate Investment in Kenya is accepted. Therefore, the finding provides no evidence of a moderating effect of Financial Development on the relationship between Portfolio Investment and Real Estate investment in Kenya.

#### 4.8 Summary of Hypotheses Tested

**Table 4.10: LIST OF HYPOTHESES TESTED AND COMMENTS**

| No | Objective  | Hypothesis  | Rule  | p-value   | Comment  |
|----|--|---|---|---|--|
| 1  | The effect of diaspora remittance on real estate investment in Kenya   | <b>H<sub>01</sub></b> : Diaspora remittance has no significant effect on real estate investment in Kenya  | Reject <b>H<sub>01</sub></b> when p value <0.05/0.1 | P value <0.05/0.1 and >0.05/0.1 (short run and long respectively) | Diaspora Remittance has no significant effect on Real Estate investment in Kenya   |
| 2  | The effect of foreign direct investment on real estate investment in Kenya   | <b>H<sub>02</sub></b> : Foreign Direct Investment has no significant effect on real estate investment in Kenya  | Reject <b>H<sub>01</sub></b> when p value <0.05/0.1 | P value <0.05/0.1 and >0.05/0.1 (short run and long respectively) | Foreign Direct Investment has a significant effect on Real Estate investment in Kenya in the short run   |
| 3  | The effect of portfolio investment on real estate investment in Kenya  | <b>H<sub>03</sub></b> : portfolio investment has no significant effect on real estate investment in Kenya   | Reject <b>H<sub>03</sub></b> when p value <0.05/0.1 | P value <0.05/0.1 and >0.05/0.1 (short run and long respectively) | Portfolio Investment has a negative and statistical significant effect on real Estate Investment in Kenya in the short-run but a positive insignificant relationship in the long-run |
| 4  | The moderating effect of financial development on the relationship between foreign inflows and real estate investment in Kenya | <b>H<sub>04</sub></b> : Financial development has no significant moderating effect on the nexus between foreign inflows and real estate investment in Kenya | Reject <b>H<sub>04</sub></b> when p value <0.05/0.1 | P value <0.05/0.1 and >0.05/0.1 (short run and long respectively) | There was weak evidence of a moderating effect of Financial Development on the relationship between Foreign Inflows and Real Estate Investment in Kenya                              |

**Source:** Researcher (2020)

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This section presents the summary of the study, conclusion, policy recommendations, contribution to knowledge and the limitations of the study and suggestion for further study.

#### 5.2 Summary of the Study

The main objective of the study was to investigate the effect of foreign inflows on real estate investment in Kenya. To achieve this, the main objective was categorised into four. The first examined of the effect of Diaspora Remittance on Real Estate Investment in Kenya. Secondly, the study established the effect of Foreign Direct Investment on Real Estate Investment in Kenya. Thirdly, the effect of Portfolio Investment on Real Estate Investment in Kenya was investigated and fourthly, the study assessed the moderating effect of Financial Development on the relationship between Foreign Inflows and Real Estate Investment in Kenya. Time-series data were collected and subjected to empirical analysis. The estimation procedure followed mainly the ARDL bounds test and the DOLS methods. The findings of the study were based on the research objectives and hypotheses of the study.

##### *5.2.1 Diaspora Remittance and Real Estate Investment in Kenya.*

From the analysis, the results revealed that Diaspora Remittance has no significant effect on Real Estate investment in Kenya. Hence, the null hypothesis was accepted in the

long run, however, in the short run, diaspora remittance significantly affect real estate investment in Kenya.

### ***5.2.2 Foreign Direct Investment and Real Estate Investment in Kenya***

Foreign Direct Investment is shown to have a significant negative effect on Real Estate investment in Kenya in the short run. In the long run, the effect of Foreign Direct Investment on Real Estate investment is negative. Therefore, the null hypothesis that Foreign Direct Investment has no significant effect on Real Estate Investment in Kenya is rejected for the short run but, accepted for the long run.

### ***5.2.3 Portfolio Investment and Real Estate Investment in Kenya***

Portfolio Investment was found to have a negative and statistically significant effect on real Estate Investment in Kenya in the short-run but a positive and statistically insignificant relationship in the long-run. Thus, the study rejected the null hypothesis that Portfolio Investment has no significant effect on Real Estate Investment in Kenya in the short run. In the long run, the null hypothesis was accepted.

### ***5.2.4 Financial Development, Foreign Inflows and Real Estate Investment in Kenya.***

Furthermore, there was largely weak evidence of a moderating effect of Financial Development on the relationship between Foreign Inflows and Real Estate Investment in Kenya. Specifically, the interaction between Financial Development and Diaspora Remittance, and the interaction between Financial Development and Portfolio Investment were not statistically significant. On the other hand, the interaction between Financial Development and Foreign Direct Investment was statistically significant at 10% level.

### **5.3 Conclusion**

This study was conducted to examine the contribution of foreign inflows to Real Estate Investment in Kenya using time series data spanning from 1990 to 2019. Various conclusions have been derived from the findings obtained in the study. Based on the findings obtained, the study concludes that foreign inflows, through Foreign Direct Investment and Portfolio Investment determine Real Estate Investment only in the short run in Kenya.

#### ***5.3.1 Diaspora Remittance and Real Estate Investment in Kenya***

In relation to the effect of diaspora remittance on real estate investment in Kenya, the study concluded that in the short run, diaspora remittance has significant effect on Real Estate Investment in Kenya. Similarly, in the long run, diaspora remittance has no significant effect on Real Estate Investment in Kenya. Based on the on both short run and long run, it can be concluded that within the sample period, a large portion of remittances received by households may have been spent on other expenses such as food, education and health rather than real estate investment.

#### ***5.3.2 Foreign Direct Investment and Real Estate Investment in Kenya***

In relation to the effect of diaspora remittance on real estate investment in Kenya, the study concluded that in the short run, foreign direct investment significantly affects Real Estate investment in Kenya. However, in the long run, foreign direct investment does not significantly predict the real Estate investment in Kenya, this is despite the move by the Government of Kenya to enhance FDI inflow through simplified procedures relating to business establishments, acquisition of license acquisition.

### ***5.3.3 Portfolio Investment and Real Estate Investment in Kenya***

In view of the effect of portfolio investment on real estate investment, the study concluded that in the short run, portfolio investment significantly and positively predicted real estate investment in Kenya. However, portfolio investment and real estate investments in Kenya had insignificant nexus in the long-run. Therefore, the study rejected the null hypothesis that Portfolio Investment has no significant effect on Real Estate Investment in Kenya in the short run. In the long run, the null hypothesis was accepted.

### ***5.3.4 Financial Development, Foreign Inflows and Real Estate Investment in Kenya***

With respect to the moderation effect of financial development on the relationship between foreign inflows and real estate investment in Kenya, the study concluded that financial development had no important moderation effect, however, with the exception of foreign direct investment. In the long run, their effects on Real Estate Investment wanes. The study also concludes that the moderating effect of Financial Development on the relationship between Foreign Inflows and Real Estate Investment in Kenya is feasible only through the Foreign Direct Investment channel.

## **5.4 Policy Recommendation**

Based on the findings and conclusions drawn, the study recommends that the Government of Kenya looks inward for alternative funding options in order to achieve growth in the real estate sector. This is because the foreign inflows have shown to influence real estate investment only in the short run. More so, that the influence of foreign inflows on real estate investment is a negative one. Hence, alternative funding sources such as mortgage financing could be the key to the growth of the real estate sector in Kenya.

However, the evaluation of the corresponding finance sources and their best possible employment lies outside the scope of this study.

### **5.5 Contribution to Knowledge**

The study has contributed to knowledge in various ways. First, the study contributes to the existing literature on the relationship between foreign inflows and real estate investment. Furthermore, most of the previous studies carried out in this area did not used moderating effect of financial development on the explanatory variables to know the effect and relationship of foreign inflows on real estate investment in Kenya. The study successfully tested the effect of foreign inflows on real estate investment in Kenya, thereby, documented conceptual framework and empirical models on the linkages between these variables.

### **5.6 Limitation of the Study and Suggestion for Further Research**

The most pertinent constrained faced in the course of this study was time which pose a huge challenge to the study to source for adequate information. The second limitation is related to actual data to measure real estate investment, which is firm level data. Therefore, should such data be available, the effect of foreign inflows on Real Estate Investment may be re-examined. Notably, national level data which was applied captured the dynamics of the study.

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**Appendix 1: Data Collection Guide**

| <b>Year</b> | <b>Diaspora<br/>remittance</b> | <b>Foreign<br/>direct<br/>investment</b> | <b>Portfolio<br/>investment</b> | <b>Financial<br/>development</b> | <b>Real estate<br/>investment</b> |
|-------------|--------------------------------|--|---------------------------------|----------------------------------|-----------------------------------|
| 1           |                                |  |                                 |                                  |                                   |
| 2           |                                |  |                                 |                                  |                                   |
| 3           |                                |  |                                 |                                  |                                   |
| 4           |                                |  |                                 |                                  |                                   |
| 5           |                                |  |                                 |                                  |                                   |
| 6.....      |                                |  |                                 |                                  |                                   |
| 30          |                                |  |                                 |                                  |                                   |

**Appendix 2: Data on the Variables used for the Empirical Analysis**

| <b>Year</b> | <b>REI</b> | <b>DR</b> | <b>FDI</b> | <b>LPI</b> | <b>FDDR</b> | <b>FDFDI</b> | <b>FDLPI</b> |
|-------------|------------|-----------|------------|------------|-------------|--------------|--------------|
| 1990        | 2.02       | 1.63      | 0.67       | 0.00       | 30.39       | 12.53        | 0.00         |
| 1991        | 2.01       | 1.52      | 0.23       | 0.00       | 30.44       | 4.60         | 0.00         |
| 1992        | 2.00       | 1.40      | 0.08       | 0.00       | 31.06       | 1.78         | 0.00         |
| 1993        | 2.00       | 2.05      | 2.53       | 6.90       | -38.00      | -46.81       | -127.57      |
| 1994        | 1.98       | 1.92      | 0.10       | 6.52       | 38.02       | 1.98         | 129.16       |
| 1995        | 1.95       | 0.97      | 0.47       | 6.66       | 24.95       | 12.13        | 171.70       |
| 1996        | 1.93       | 0.73      | 0.90       | 5.93       | 15.78       | 19.53        | 128.71       |
| 1997        | 1.91       | 3.86      | 0.47       | 6.64       | 94.26       | 11.47        | 161.96       |
| 1998        | 1.89       | 3.77      | 0.19       | 6.60       | 90.58       | 4.56         | 158.28       |
| 1999        | 1.87       | 4.54      | 0.40       | 6.27       | 120.63      | 10.64        | 166.71       |
| 2000        | 1.85       | 4.23      | 0.87       | 6.78       | 109.24      | 22.45        | 174.85       |
| 2001        | 1.83       | 0.39      | 0.04       | 6.38       | 9.88        | 1.01         | 160.68       |
| 2002        | 1.80       | 0.44      | 0.21       | 6.47       | 11.27       | 5.44         | 167.57       |
| 2003        | 1.78       | 0.44      | 0.55       | 5.81       | 11.14       | 13.86        | 146.35       |
| 2004        | 1.76       | 2.34      | 0.29       | 6.51       | 63.75       | 7.92         | 177.67       |
| 2005        | 1.76       | 2.27      | 0.11       | 6.50       | 59.65       | 2.89         | 170.89       |
| 2006        | 1.76       | 2.21      | 0.20       | 6.26       | 50.59       | 4.58         | 143.27       |
| 2007        | 1.76       | 2.02      | 2.28       | 5.66       | 46.44       | 52.44        | 130.12       |
| 2008        | 1.77       | 1.86      | 0.27       | 6.70       | 47.22       | 6.86         | 170.20       |
| 2009        | 1.78       | 1.71      | 0.31       | 6.42       | 42.65       | 7.75         | 160.53       |
| 2010        | 1.83       | 1.71      | 0.45       | 7.34       | 46.62       | 12.24        | 199.77       |
| 2011        | 1.90       | 2.23      | 3.46       | 7.30       | 68.15       | 105.88       | 223.49       |
| 2012        | 1.97       | 2.40      | 2.74       | 8.41       | 70.86       | 80.83        | 248.10       |
| 2013        | 2.04       | 2.37      | 2.03       | 8.47       | 75.03       | 64.35        | 268.58       |
| 2014        | 2.11       | 2.35      | 1.34       | 8.98       | 79.96       | 45.69        | 306.21       |
| 2015        | 2.93       | 2.45      | 0.97       | 7.03       | 83.86       | 33.17        | 240.55       |
| 2016        | 3.74       | 2.52      | 0.57       | 7.35       | 84.49       | 19.09        | 246.37       |
| 2017        | 4.56       | 2.49      | 1.00       | 8.05       | 73.06       | 29.40        | 236.65       |
| 2018        | 5.37       | 3.10      | 1.85       | 8.30       | 86.72       | 51.80        | 232.51       |
| 2019        | 6.18       | 2.95      | 2.70       | 8.46       | 81.33       | 74.39        | 233.17       |