ADDIS ABABA UNIVERSITY

Factors affecting investment in real estate in Ethiopia

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Declaration

I, the undersigned, declared that this research project is my original work. It has not been submitted to none other than Addis Ababa University College of Business and Economics for partial fulfilment of the requirement for Degree of Masters in Business Administration

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CONTENTSi

List of Table

List of Figure

ABSTRACT

This research paper ought to study factors affecting investment in real estate in Ethiopia mainly to identify and analyze the major influential factors that affect investment in real estate sector in Ethiopia. The study took a secondary data with time series variables for a period of 26 years from 1994-2019. The analysis is done using OLS multiple regression. The results show that, for the long run estimation, it's found that: urban population growth, GDP and exchange rate have positive significant influence on real estate investment capital growth while interest rate has significant negative effect on real estate investment capital growth. For short run estimation, it's found that GDP and exchange rate has positive significant influence on real estate investment capital growth. On the contrary, inflation is found to have no influential effect on the real estate investment capital growth both in long run as well as short run regression estimation. From this it is concluded that GDP, exchange rate and interest rate are the major factors that affect investment in real estate in Ethiopia. Therefore, as recommendation policies that work on factors such as GDP growth, Exchange rate and interest rate could significantly improve and boost investment in real estate that helps to develop the sector, which in turn will benefit for the growth of the country.

keywords; real estate investment, OLS, exchange rate, GDP, interest rate, inflation rate, urban population growth

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Investment in general is an act of obtaining an item or a given asset in hope of acquiring a return in profit through income stream or appreciation of values. It is one of the primary engines of growth in all economies (EIC report, 2019). There are different types of investment, of which, real estate is one of the prominent investment sector in Ethiopia.

Land and buildings have played an important role in both the ancient and the modern world as a source of wealth, power, and economic strength. (Susan Hudson-Wilson, Frank J. Fabozzi and Jacques N. Gordon, 2003). The concept of real estate business is not a new concept but through different technology and major change in growth of population around the world, it has become the most prominent business.

According to UN data, Ethiopian population at 2020 is about 114,963,588 which is equivalent to 1.47% of the total world population. With its fast increasing rate of population, Ethiopia is estimated to share 2.11% of the world's population by 2050.

With increasing rate of population, there is a continuous demand for housing. At the capital city, Addis Ababa, where more than 2.7 million people reside, real estate plays a huge role in meeting people's housing needs. The real estate business is currently boosting business in Ethiopia. Housing is one of those basic social conditions that determine the quality of life and welfare of people (UN habitat, 2012) and places. Therefore, housing is indispensable for rapidly growing population leading to urbanization.

Real estate market is a transaction that happens through the process of real estate investment. These real estate investments can be used for residential, commercial, industrial, agricultural or for other intended purposes. In Ethiopia, the rate of investment increases substantially starting from 1992 (Mitiku, 1996). There has been a major decline of investment from 1975-1989 (Mitiku, 1996). Since 1992, real estate investment in Ethiopia becomes accessible for domestic and foreign investors, which makes it one of the best investment sectors in the country.

Opening international boarders as one of the effects of globalization in the world economy, made it possible for many countries to open up and encourage a smooth transaction and flow of FDI which makes it attractive for foreign investors to take part in various investment sectors. As such, from foreign investor's investment selection criteria (Peddy and Dominique, 2007) level of operational risk is the main determining decision factor. The other factor (Dhiraj Jain and Nikhil Mandot 2012) Demographics have an impact on investor's decision making. There are also Challenges faced by foreign real estate investor's which is related with lack of legal system regulations, labor related issues, lack of incentives from the government and issues related with finance. (Simachew, 2017). Investors look out for locations to invest in real estate mainly depending on constantly changing laws and regulation as well as market conditions (Małgorzata Rymarzak and Ewa Siemin´ska, 2012).

There are studies that show independent factors having effects on the real estate market or market drivers and their relation with the real estate investment trust. According to Ethiopian Investment Commission, real estate comparatively is one of the top boosting businesses in Ethiopia. On this paper, the author tries to show factors that drive or influence investors to invest on real estate in Ethiopia. This paper will show the pattern as well as the influencing factors on the investor's perspective towards the increment of real estate investment. This particular paper can be used by real estate developers, real estate investors and new entrants, and government offices as an input for comparative source and researchers.

1. 2 STATEMENT OF THE PROBLEM

Housing is a significant issue in determining a country's development both in developing and developed states both in the urban as well as rural areas (Simachew Mulugeta, 2017). When talking about Ethiopia, being the second largest populous nation in Africa with 21.3% of the population being urban (UN worldometer, 2020) it is a subject of interest to study more on housing availability. With the increasing number of population that resides in urban cities of Ethiopia, there is a continuous demand for housing. To accommodate for the increasing population's demand. Real estate is presented as one mechanism to supply for the high demand. There are studies that show how demographic factors affect the real estate performance. (Dhiraj Jain & Nikhil Mandot, 2012), (Richard UgochukwuElile, Sunday S. Akpan, &ValliappanRaju, 2019) but there's lack of study on how the urban population growth affect the real estate investment. And also there are studies that shows inflation rate being one of the influential

factors for real estate investment. (Richard UgochukwuElile, 2019) (Sunday S. Akpan, 2020) (Jack Rubens, 1989) (WorkieMitiku, 1996). But the results are contrary as suppose to show the effect inflation has on real estate performance on different study, there by this study finds the gap to explore more on this subject matter. There are studies that show the effect of GDP on real estate performance. Considering the economic performance of a country having an influence on investment, but further integral study is recommended by recent study (Richard UgochukwuElile, Sunday S. Akpan, &ValliappanRaju, 2019). Lending interest rate is also one of the factors that are not extensively explored; it is overlooked by many studies while some recent studies incorporate the depositary interest rate to show effect on the real estate performance (Sunday S. Akpan, 2020). Exchange rate is used as another influential factor since there are studies that show it's effect on real estate performance on different countries (A.O. Diala, 2017) but this study would like to show it's effect in Ethiopian case taking the effect of the raising the fluctuation rate under consideration. There fore from these, the independent variables are picked to be urban population growth , inflation rate, GDP, lending interest rate and exchange rate, that shows the effect each have on the dependent variable that is the real estate investment.

The general motivation to do this research is that is aims at filling the gap of the previous using the guidance and recommendation from the recent study to explore the study on the main influential factors that affect investment in real estate. Inconsistency of results of different studies also calls for clarity further more researches has not been done using these specific variables to study its effect on real estate investment using time series data from 1994-2019.

1.3 RESEARCH QUESTION

The paper tries to answer the following research questions

- ✓ What is the effect of economic growth (GDP growth) on how it influences investors to invest in real estate in Ethiopia?
- ✓ What is the effect of urban population growth on how it influences investors to invest in real estate in Ethiopia?
- ✓ What is the effect of lending interest rate on how it influences investors to invest in real estate in Ethiopia?
- ✓ What is the effect of inflation rate on how it influences investors to invest in real estate in Ethiopia?

- ✓ What is the effect of exchange rate on how it influences investors to invest in real estate in Ethiopia?

1.4 OBJECTIVE OF THE STUDY

1.4.1 GENERAL OBJECTIVES

The general objective of the paper is to determine influential factors that affect investment in the real estate sector in Ethiopia.

1.4.2 SPECIFIC OBJECTIVES

The study is guided by the following specific objectives;

- ✓ To determine the effect of GDP growth on how it influence investors to invest in real estate in Ethiopia
- ✓ To determine the effect of urban population growth on how it influences investor's to invest in real estate in Ethiopia
- ✓ To determine the effect of lending interest rate on how it influence investors to invest in real estate in Ethiopia
- ✓ To determine the effect of inflation rate on how it influence investors to invest in real estate in Ethiopia
- ✓ To determine the effect of exchange rate on how it influence investors to invest in real estate in Ethiopia

1.5 SIGNIFICANCE OF THE PAPER

The paper will be helpful for real estate developers and mainly for real estate investors to have an insight for their further investment. It will help financial institutions basically in dealing with financing knowing the investor's point of view and the government will also benefit from this study since it encompasses issues related with the policy's effect on investors.

The study will also give relevant information for a new investors looking for adjusting or to expand their portfolio. It will give them some amount of knowledge on factors that are influential which can affect the outcome. And paying attention for these variables will help them have a clear path and there by lets them have an informed decision.

It would also benefit those looking for better investment options. Since this paper also covers areas dealing with macroeconomic factors, it would be beneficial to have an outlook on that specific study area to make an informed decision.
The pattern of each independent variable and its influence on real estate investment can help investors when and how to allocate their capital. Looking at the urban population growth, the investors might be interested in investing in locations that currently have and forecast the future high demand based on the stats thus far. It goes the same for lending interest rate, inflation fluctuation rate, the exchange rate as well as GDP, it will give the investors the data that's needed to cross check and predict the future value considering the collective influence of each variable on real estate investment.

This paper will also help a new researches or students on this subject matter. And also it can be used to add on the already existing studies as a means of improvement to fill the gap.

1.6 SCOPE OF THE PAPER

The study specify five independent variables namely, GDP, urban population growth, interest rates, inflation and exchange rate, to show it's influential effect on real estate investment . The data is be obtained from Ethiopian Investment Commission, National Bank of Ethiopia and World Bank for the sectorial analysis of the macroeconomic factors and the population data using time series data from 1994- 2019.

The study period is chosen based on the data availability from Ethiopian investment commission starting from 1994-2019 of real estate investment data obtained. There by analysis is done for the period of 26 years in order to capture all the influential factors effect given all the available data for Ethiopian case.

1.7 LIMITATION OF THE STUDY

The research mainly studied on real estate investment factors, on which the data available is confined and authorized to remain confidential. The corona virus, due to major risks and precautions makes accessibility of the data a little bit slower. The inconsistency of data of national bank on their site happened to be a challenge.

1.8 ORGANIZATION OF THE PAPER

The paper is grouped in to five chapters. The first chapter will discuss the introduction, the statement of the problem, objective, scope of the study including the significance of the paper and chapter two will discuss all about the literature review, classified as empirical and theoretical review including conceptual frame work and research gaps. The third chapter gives a gist on how to conduct the research, including the research design, methodology, data collection methods and instruments used. The fourth chapter discusses the implementation process of the study, findings of the analysis from the collected data and discussion of the study is included in this chapter. The fifth chapter contains the last part of the paper conclusion as well as recommendation.

CHAPTER 2

LITERATURE REVIEW

2.1 THEORETICAL REVIEW

Theory is misunderstood by many and sometimes interchangeably used with practice. A good theory is a base for all the process to come and it is practical by itself. Theory can help deal with more complex issues and finds a clear path for the analysis process.(Charles Kivunja, 2018)

The word Real in the term real estate said to be derived from French as well as Spanish, which has a meaning of royal. This statement was mentioned by none other than Meyer Melnikoff, an early proponent of real estate's role in a mixed-asset portfolio. Susan Hudson-Wilson, Frank J. Fabozzi, and Jacques N. Gordon (2003)

What portfolio theory does is provide models into which data and assumptions can be built so that the past may be analyzed and the effect of varying assumptions about the future examined. Portfolio theory has the practical results of improving the setting of objectives, of providing a rational basis for portfolio building, of aiding market timing, of enhancing portfolio control, of measuring performance and of creating a valuation model through which to observe the future' (Myles E. Mangram , 2013)

Modern portfolio theory is a theory that shows portfolio construction by investors that is risk averse wanting to maximize their return considering the market risk. One of the founding theories for the development of modern portfolio theory is Markowitz Portfolio Theory. The on portfolio construction using mathematical problem in 1952 mainly shows how to analyse using the return of asset's means and variances contained in the portfolio. I.e. one investor wants the mean fixed while minimizing the variance. The investor depending on how risk averse they are, picks it's portfolio from efficient set. Markowitz portfolio selection model is not been used practically because of its requirement of large data. The model of sharp, which come after Markowitz's model, reduced the requirement of huge data using approximation by estimation of how assets depends on the behaviour market. Markowitz's model's drawback is that variance can not fully measure the risk taken by the investor, it can not clearly show the

investor on the selection of portfolio if they wanted to take the risk. Therefore, as an investor, when using Markowitz's model, they might have to additionally do risk calculation for extreme events using extreme value statistics. Even if this model is practically not being used, it helped as a base for the one of the award winning model in 1990 in Memory of Alfred Nobel, with Sveriges Riksbank Prize in Economic Sciences. (Markowitz, H. 1952)

Although there are not enough evidences on real estate return, evidences indicate that there is general similarity between real estate and stock market returns in a long term. While common stock and real estate investment have a clear difference in market efficiency and risk characteristics. For portfolio being concerning issues these type of differences makes a huge difference. There by, when talking about efficiency, real estate markets are less efficient than stock market and real estate returns are less volatile i.e. they don't reach very high and very low return rapidly, so it's easier to for caste. The real estate sector is not as innovative as the rest of the investment types like in industrial and commercial enterprises. Real property tends to be not affected by short term market influencers but rather by the long terms. Where, values move easily or less rapidly than the stock market Future trends are more predictable. Back in the 80s, the rationale of holding real estate was discredited. Susan Hudson-Wilson et al., 2003. The returns from real estate had less dispersion than those for common stocks and that, for a given rate of return, real estate had a lower level of risk. Capitalization rates for real estate are more pronounced than common stocks. (Harris C. Friedman, 1971)

On pre-reform period, the system has policies that are discriminatory towards interest rates, foreign exchange rate as well as credit allocation. Depending on the level of socialization, interest rate is set to be at a low though different interest rates were set for different sectors. On this day, the national bank of Ethiopia already has a standard minimum limit for depositary interest rate. And it leaves room for other rates to be set and adjusted according to the market. (Alemayehu, 2001). During the pre reform period, exchange rates were completely handled and it has a constant value of 2.07birr/% UD for almost decades until the reform at 1992. There was devaluation of exchange rate at the beginning of the reform. In the 1995 national bank of Ethiopia adopted the system of whole sale auction system from auction based system by involving the banks as whole sale bidders. Today, the interbank foreign exchange market is used to tell the exchange rate. (Alemayehu Geda, 2001).

The loan fund theory considers interest rate to be the only macroeconomic determinant of supply and demand of loan funds. According to this theory, interest rate is determined using a partial equilibrium model with different variables held constant aside from interest rate. And the demand for loanable fund represents a diminishing function of interest rate. Therefore, the interest rate can be determined by intersection of demand and supply schedule of loan fund Hansen, A. H. (1951) or it can be interpreted as, the factors that determine the demand and supply of loan funds will lead to equilibrium interest rate (Githinji, 2015).

Real GDP doesn't have strong relationship with real estate market (Bouchouicha and Ftiti, 2012). Increased real output result in growth and higher production (Ewing and Payne 2003) Sweden and Switzerland confronted their financial crisis issues and which lets them have a solid economic foundation to attract foreign investments.

Interest rate has influence on purchasing of property. Interest rate also affects supply and demand, investment rate of return, capital flows as well as property prices in general (Andrew, 2004)

The monetary theory of inflation declares that the growth of money supply is due to the cause of inflation. Faster money supply growth causes faster inflation. The price of real estate is determined through supply and demand. The price of items will increase when the supply is lower than the demand .Friedman and Schwartz, (1963). There is relation between inflation and real estate market. Developing output and growing earnings levels in the society leads to an increase in demand thru better consumption and investment, which as a result brings a positive influence on prices of goods and services (Blanchard, 2010).

Exchange rate has massive influence on the real estate industry. It mainly affects and influences the investors on the purchasing power of real estate while purchasing real estates. The exchange rate has effect on the prices that's paid when purchasing foreign property. When there's a depreciation of the rate the real estate price will not be affected but eventually if it gradually depreciates, real estate price will be higher. Due to the depreciation, it would cost higher to import goods which will decrease disposable income which in turnn makes the real estate housing expensive. (Gunjan 2013).

Exchange rates regularly fluctuate. It fluctuates due to the fact of supply and demand. when the demand for the foreign currency increases, the supply will decrease or stay the same. But the value drops when many are not buying. (Chitty2015)

2.2 EMPIRICAL REVIEW

There are macroeconomic determinants of real estate investment performance i.e. effect of inflation, exchange rate, and per capita GDP. These factors are studied individually on the performance of real estate investment in terms of its contribution to the growth of gross domestic product in Nigeria. Using OLS regression taking 37 years of data, after analysis and regression of the data, it's found that Inflation, per capita GDP and exchange rate are important macroeconomic determinants for the real estate performance in Nigeria. Attaining higher real estate performance with an increase in inflation would be difficult and complex to deal with for growth to be achieved. So focusing on Policy toward improve GDP is appreciated. (Richard Ugochukwu Elile, Sunday S. Akpan and Valliappan Raju , 2019)

Where there's an increase in level of risk, there a high demand for number of investment avenues for investors. And more money is also at stake for different level of demographic profile. The level of risk can be seen in relation with different demographic factors like marital status, age, gender, investor's educational qualification, investor's occupation, Income, investor's knowledge and investor's city. And the impacts they have on investor's decision making. Data is taken from 2011- 2012 using 200 investors as a sample. Correlation analysis is done focusing more and confined to the risk preferences on the investment decision of investors in Rajasthan, it's found that demographic factors such as marital status, age, investor's educational qualification, investor's occupation, Income, investor's knowledge have impact on investor's decision making while investor's city and gender have no impact on investor's decision. (Dhiraj Jain & Nikhil Mandot, 2012)

Following international economic liberalization, which is an open gate for foreign direct investment, the preferences of foreign investors' investment in real estate market has increased. According to research (Jones Lang LaSalle's global real estate capital report) , Foreign governments, international financial institutions, foreign companies, foreign pension and equity funds, and foreign individuals all take notes of the performance of real estate in Asia, and see opportunities to take advantage of healthy returns on their investments. In terms of selections criteria for their investment in Taiwan, taking data from 1997-2003 using 40 foreign investors that had invested in Taiwan as a sample, the following result is developed. Ranking them based on priorities of factors affecting decision making of foreign investors in Taiwan, It took economic, policy, market, social, and product factors for study. The economic factors, such as

operational risk, land cost and national competitiveness are found to be the most important or major determinant criteria when investors are making an international investment in Taiwan, Factors of policy and market situation are ranked next since a country's political stabilities have great impact on foreign investment. Land Cost is also the next important factor for investment there by access to land and incentive for foreign firms is considered a boost and it will help the investment. Operational risk and market size are the two factors that are closely related since the firm's operational risk is lower for a larger the market size which leads to a higher profit making opportunities. Marketing has less effort in foreign real estate market. (Peddy Pi-Ying Lai, Dominique Fischer, 2007)

Using four real estate portfolio group, taking time-series data from 1978- 1994, using multiple regression to determine whether real estate return can be affected by the growth rate in the T-bill rate, per capita consumption, inflation rate and interest rates. The fundamental variables as described by David C. Ling and Andy Naranjo (1997), it's found that growth rate in real per capita consumption and the real T-bill rate affect real estate return while it is not so for unexpected inflation rate and term structure of interest rate.

Through checking for property speculation for homeowners or potential home owner, survey data taken from 10 largest cities in china taking 5160 samples of homeowners or potential home owners their investment types and geographic demand for real estate investment in large Chinese cities is studied which is founds that home owners or potential homeowners who are employed by the state owned enterprise invest highly in real estate compared to those of domestic private enterprise employees. The high price also lowers the purchasing power and if bought will be outside their current locations looking for lower price. (N.Edward Coulson and Mingzhe Tang, 2012)

(Bradley T. Ewin,James E. Payn, 2003) uses data from 1980-2000 which finds that shocks to the economic growth, inflation and monetary policy leads to lower expected REIT returns while higher future REIT returns will be related for any shock to the default risk premium.

On the study to determine the impact of macroeconomic factor on performance of real estate performance in Kenya, using OLS data taken from 2000 2014. Interest rate is found to have a positive significant effect on real estate performance in Kenya and is a major determining factor. Bioreri (2015)

For long run, risk adverse investor that wants to diversify among European bonds, stocks, cash and real estate. Taking data from 1986-2005 having total of 238 observations. When expecting predictable excess asset return, it's found that real estate play a major role in choice of optimal portfolio. (Carolina Fugazza, Massimo Guidolin & Giovanna Nicodano, 2007).

(Karsten Lieser & Alexander Peter Groh, 2013) identifying six drivers that determine the attractiveness of real estate market, using panel regression analysis of forty seven different countries worldwide, found that rapid urbanization, demographics and economic growth attracts real estate investment. And on the contrary socio-cultural challenges, lack of transparency in the legal framework, political instability and administrative burdens reduces the real estate investment.

Private investment is one of the business sectors in Ethiopia which is widely seen to be a great investment choice. (Workie Mitiku, 1996) using time series data from 1975-94, it's found that the one of the macroeconomic determinant i.e. availability of finance is a very important factor for private investment rather than interest rate. In addition, macro economic instability and domestic inflation rate and political/policy instability are not a significant factor or determinant of private investment.

(Nathan Mauck, S. McKay Price, 2015) Using logit regression model of seven thousand observations, determine that Foreign and domestic determinants of commercial real estate investment are not the same. Taking eighty four separate countries, (Nathan Mauck, S. McKay Price, 2015) found that Compared to domestically traded real estate companies, publicly traded real estate companies invest more on larger assets. And capital market development is negatively related to foreign investment.

In dealing with the return performance of publicly traded real estate companies (David C Ling, Andy Naranjo, 2002) using OLS regression on data from six hundred real estate companies in twenty eight different countries, it is found that there is a variation in excess real estate return per unit of systemic risk across countries. And so real estate securities may provide for international diversification opportunity. The public and private real estate markets is affected by co integration of capital markets (Sorin A. Tuluca, F. C. Neil Myer, James R. Webb, 2000) using OLS regression on quarterly observation, it's found that the long-term equilibrium

relationship establishes a dynamics between the private and public real estate markets and, the private market lead the public from ADF test-co integration. Sorin A. Tuluca, F. C. Neil Myer and James R. Webb, (2000)

When composing portfolio for real estate investment allocation, the portfolio composition that has an effect of exchange rate with adjusted returns have difference with the one that do not have adjustment. (Matthias Thomas & Stephen L. Lee, 2006). The ultimate goal for an investment is to have an exchange rate that will boost the domestic production, increase the inflow of FDI maintaining internal and external balance. Osinubi, Tokunbo S. And Maghionyeodiwe, Lloyd A, (2009).

On the study to determine effects of exchange rate volatility on real estate price in Ghana ARDL for analysis and taking 32 years of data, it's found that exchange rate has no effect on real estate, remittances has positive relation with real estate price and inflation negatively affect real estate price housing in Ghana (Kwame Adu Jack, Frimpong Okyere and Emmanuel K. S. Amoah, 2019)

On study that examines the relationship with a view to determining the extent to which real exchange rate movements stifle FDI inflows, selected SSA countries are used and regression analysis is done. There by, it is found that foreign investment is directly influenced by real exchange rate movement (Oluremi Ogun, Festus O. Egwaikhide and Eric K. Ogunleye, 2012)

Exchange Rate Volatility and International Real Estate Diversification is studied by taking 10 year data 1990-1999 using five emerging economies and seven developed economies and it is found that portfolio of real estate investments in emerging economies provided a higher return at any given risk than a corresponding portfolio in developed economies. There fore, it's advisable to diversify portfolio of real estate investment. Kwame Addae Dapaah and Hwee L. Loh (2005)

The micro economic factors i.e. interest rate and money supply are considered to have a great influence in real estate investment towards boosting country's economy. Sunday S. Akpan et al., 2020 OLS multiple regression model is used taking data from 1980-2017.And it's found that interest rate has significant positive effect on real estate investment while the money

supply have insignificant positive effect on real estate investment. There by it's said that increasing the value of interest rate while lowering the value of money supply is recommended since interest rate risk is an important determinant of real-estate investment. Furthermore to boost the economy the depository interest rate should be hiked to encourage more investment. Sunday S. Akpan, Mfon N. U. Akpan and Samuel S. Charlie (2020)

This research will show the factors that have great influence on investors to attract or invest their money towards the real estate investment sector.

2.3 SUMMARY OF LITERATURE AND KNOWLEDGE GAP

Demographics are characteristics of human population that contains data that are intrinsic or extrinsic which has a major effect on real estate investment. Some demographic factors like age, marital status, gender, city, income level, Market knowledge, occupations and qualifications are studied in relation with the level risk (Dhiraj Jain & Nikhil Mandot, 2012). Prominent factor such as population growth or migration pattern is not included in the study. Factors that influence real estate investment is studied by (Richard UgochukwuElile, Sunday S. Akpan, &ValliappanRaju, 2019) the study mainly focuses on macroeconomic factor setting the demographic and socio economic factors as a controlled variable. Additional studies are also recommended on the topic which this study took by the offer to explore one of the demographic factors, urban population growth as an independent variable for this study.

Economy is generally the overall health of the country. A source of predictability in return of real estate investment trusts in real estate portfolio is to be the economic variables (G. Andrew Karolyi, Anthony B. Sanders, 1998). Increased real output result in growth and higher production (Ewing and Payne 2003).The main macroeconomic determinants of economy: inflation, exchange rate as well as per capita GDP are studied by (Richard UgochukwuElile, Sunday S. Akpan, &ValliappanRaju, 2019) stating that policy towards increase in GDP is going to bring improvement in real estate investment as well as general socio-economic well being of the people. Further integral studies have been recommended by Richard UgochukwuElile, Sunday S. Akpan, andValliappanRaju, (2019) on macroeconomic determinants for real estate investment.

Increasing inflation to boost the real estate performance is found to be very complicated and it is way farfetched and halts growth (Richard UgochukwuElile, Sunday S. Akpan,

&ValliappanRaju, 2019). Excessive money supply led to an inflationary environment and such environment affect investments in real estate (Sunday S. Akpan, Mfon N. U. Akpan& Samuel S. Charlie,2020). Real estate is one of the prominent and very well known inflation hedges since it protects investors from the effect of inflation (Jack Rubens,Michael Bond &James Webb, 1989) . Domestic inflation rate,macro economic instability in the econometric analysis and the political instability in survey are not significant determinants of private investment (WorkieMitiku, 1996). Inflation has negative relation with real estate price in Ghana Kwamw et al., 2019. The studies are found to be in contrary with each other, there by, the study take inflation data to see its effect on real estate investors in relation with the investment in real estate.

In studying the effect of interest rate and money supply of real estate investment on economic growth, Sunday S. Akpan et al., 2020 states that higher interest rate and reduction in money supply will lead to the growth of real estate investment. The high interest on deposit are employed to raise the cost of borrowing, this will benefit the depositors to get more money to reinvest in real estate sector that in turn help grow the economy (Sunday S. Akpan, Mfon N. U. Akpan& Samuel S. Charlie,2020). This study shows the outcome of having high depositary interest rate on real estate performance and growth of economy but the study lacks to show how raising the cost of borrowing will cut back spending and how it affects the real estate market as well as the economy in huge amount. On another study, real estate investment price movements have a low correlation with changes in interest rates (Glenn Mueller &Keith Pauley, 1995) and Interest rate has influence on purchasing price of property (Andrew, 2004). The study Bioreri (2015), shows interest rate has a positive significant effect on real estate performance in Kenya .And in the study of macroeconomic determinant of real estate investment, Richard UgochukwuElile,Sunday S. Akpan, &ValliappanRaju, 2019, leave out interest rate as a main determinant while studying other macroeconomic factors like inflation, exchange rate, GDP. As such, considering the contradictory result and as per the recommendation for further integral study by Richard et al., 2019, this paper is inclined to use interest rate as an independent variable.

Exchange rate fluctuation has a positive relation with real estate investment return in Nigeria and it's found to be significant factor A.O. Diala et al.,2017(A.O. Diala, I.O. Kalu & I. Igwe-Kalu,2017) or exchange rate is found to have no effect on real estate housing in Ghana (Kwame Adu Jack, Frimpong Okyere and Emmanuel K. S. Amoah 2019). Different studies shows

exchange rate to be major determining factor karsten lieser et al., (2013). (Warren Moraghen, Boopen Seetanah, Noor Ul Haq Sookia 2020), Kwame Addae-Dapaah and Hwee L. Loh(2005). Foreign investment is directly influenced by real exchange rate movement Oluremi Ogun, Festus O. Egwaikhide and Eric K. Ogunleye (2012), Exchange rate affects real estate price (Chitty2015). Exchange rate has massive influence on real estate industry, negative (Gunjan 2013). Since foreign currency is a big issue as Ethiopian Birr is performing weakly against major foreign currencies within the global competitive market. There is a need to incorporate the exchange rate as a main factor in relation with the real estate investment capital growth for Ethiopian case since majority of the study is based on different countries showing contradicting results.

2.4 CONCEPTUAL FRAME WORK

The conceptual frame work shows the relation of each determining factors showing their influence on the dependent variable i.e. real estate investment. The relationship is developed based on the empirical studies done together with the theoretical touch.

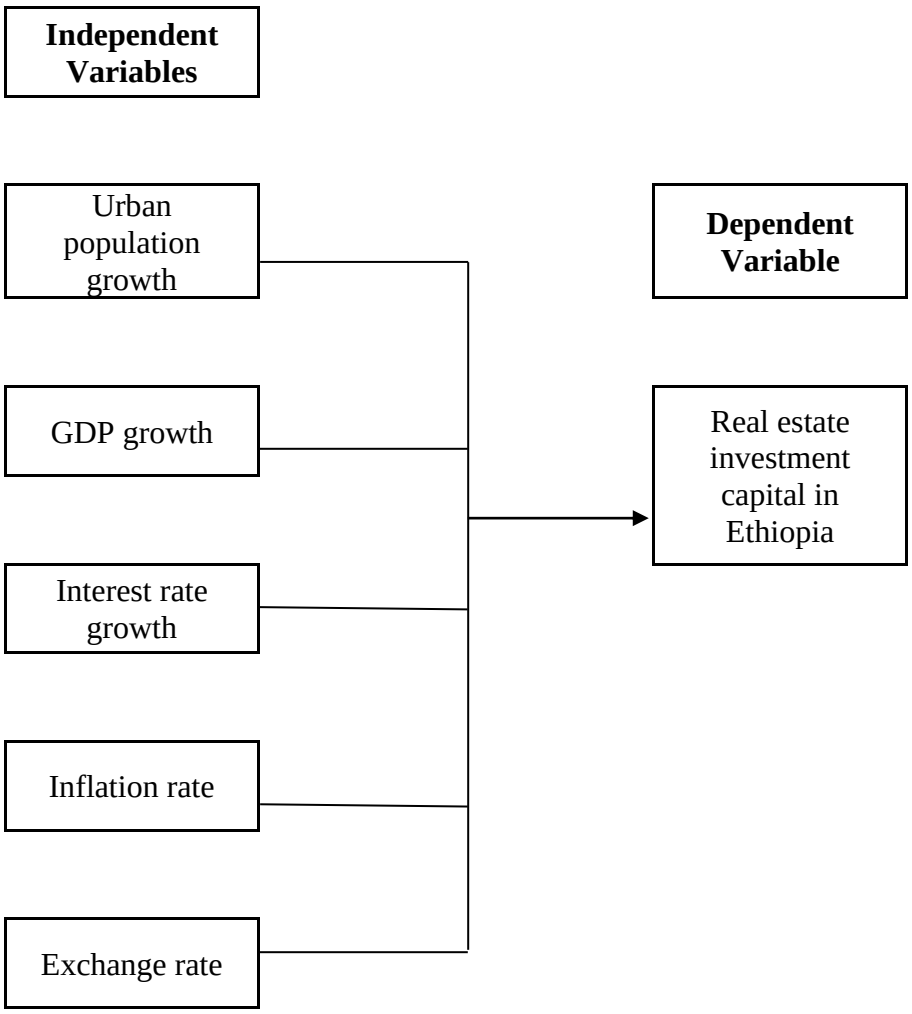

Figure: Conceptual frame work

CHAPTER 3

RESEARCH METHODOLOGY

In this section, it is described the research design and methodology that is implemented to achieve the research objective. There by it consists of the data source and collection methods, sampling techniques and data analysis methods.

3.1.1 RESEARCH DESIGN

The research design of any study is a framework that helps any researcher in thoroughly studying of the research problem. It is a conceptual structure used to explore new knowledge in the research. Kothari, C.R. (2004). The main purpose of this study is to investigate the major factors that influence investors to invest on real estate sector in Ethiopia. According to Kothari, C.R. (2004), Classical statistics approach is used for model building, since the research has a cause and effect relationship and incorporating the hypotheses, Explanatory research design is used with appropriate quantitative data to meet the objective of the study. The author in this paper justifies this by using secondary source of data. The data will be obtained from Ethiopian investment commission, National Bank of Ethiopia and World Bank. To study the effect of the influential factors such as; urban population growth, GDP, interest rate, Inflation fluctuation rate, exchange rate on real estate investment using Time Series Analysis on the variables. The author will by no means alter the outcome; will adhere to the characteristics of the study.

3.1.2 DATA SCOPE AND APPROACH

Population as it is known is a group of objects or individuals out of which a specific sample is taken for analysis or measurement. (kothari, 2004). For the secondary data of the study, the study uses sectorial data of the real estate investors from Ethiopian investment commission. Real estate business has begun officially in Ethiopia starting from 1992. There fore the analysis of the secondary data will start from 1994-2020. The data is taken with respect to capital available from EIC for twenty six years. The investment commission has three stages in regards to real estate investment, the pre implementation stage, the implementation stage and the operation stage. The respective data of the independent variables is found from National bank of Ethiopia and from the World Bank.

3.1.3 DATA SOURCE AND ANALYSIS

The data from secondary data is obtained from EIC (Ethiopian investment commission), National bank of Ethiopia and World Bank that is going to be used for sectorial analysis. The secondary data are collected through a physical visit, making an inquiry with a paper format and using the official government websites.

As per the analysis, the data are analyzed using the software STATA, for fast and accurate result. The study uses OLS multiple regression model for the study variables as proposed and used in previous literature studies.

3.1.4 EMPIRICAL MODEL

There are model assumptions when applying an OLS regression model, these assumptions are namely; Normality test, Multicollinarity test, Autocorrelation test, Hetroskedasticity test, cointegration test is applied on the data to check for the validity of the assumptions. The assumptions of OLS are namely Linear relationship: - that is average of all errors are zero, Homoscedasticity: - the variance of errors is constant, No Autocorrelation: - independent variables are not correlated with estimated error term, Normality: -, disturbances are normally distributed, No or Little Multicolinearity: - independent variables highly correlate with each other. (Damodar N. Gujarati, 2004)

3.1.5 MODEL SPECIFICATION

Investment on real estate

Real estate investment is a boosting business due to its contribution to massively tackle the problem of housing supply (Simachew Muluugeta, 2017) especially in Ethiopia, where there's an increase in urbanization, the researcher will be analyzing this factor as a dependent variable in contrast with factors that influence investors to invest on real estate. For these reason the study use the capital investment of each year's real estate operational investment in Ethiopia as a proxy for investment obtained from the EIC starting from 1994 -2019.

Urban population growth

Different demographic factors like age, marital status, investor's academic qualification, investor's occupation and the like have a major influence on the level of risk the investors take(Dhiraj Jain & Nikhil Mandot, 2012). Study by Tie-Ying Liu, Chi-Wei Su, Hsu-Ling Chang and Chien-Chi Chu, (2018) shows that urbanization have positive relationship with real

estate development in China. There by, the author will take urban population growth factor as an independent factor to study its influence on the dependent variable. Taking the hypothesis **H1**; urban population growth has positive influence on Real estate investment capital growth. This particular study use the urban population growth data of Ethiopia for the analysis using time series data from 1994 -2019 to analyze its influential relation with real estate investment capital growth.

Economic growth (GDP)

Real estate investment is given concerted attention due to its critical role and contribution to national economy and socioeconomic development of nation. (Richard Ugochukwu Elile, Sunday S. Akpan & lliappan Raju, 2019). Real estate business have positive relation with the economy since it helps in creation of jobs, housing provision, income enhancement and most importantly poverty alleviation Mukhtar et al. (2016). Real GDP don't strongly affect real estate market (Bouchouicha and Ftiti, 2012). Increased real output result in growth and higher production (Ewing and Payne 2003). The real estate market will be stronger for strong economy. The real estate market has impact on Vietnam's economic growth (Nguyen My-Linh Thi et al., 2019). Considering the studies, the hypothesis is developed to be tested further as **H2**: GDP growth has positive influence on Real estate investment capital growth. There by, the study uses the data of gross domestic product growth of Ethiopia for analysis starting from 1994 -2019 in order to determine its influential effect on the real estate investment capital.

Interest rate

Fluctuation in interest rate has a big influence in investment. Real estate, among other investment, is considered as asset with limited liquidity that mainly rely on cash flow requiring a large sum of money as a starter which later on will be gained through other financing. Masika, A. M. (2010). Depository Interest rate is found to have positive significant relation ship with real estate performance Sunday S. Akpan et al., (2020). Factors such as interest rate is specified to be the most important macro economic variables for explaining the average variation in REIT returns Chan, K.C., Patric Hendershott, and Anthony B. Sanders. (1990). According to (IMF, 2003) it's found that there's a negative relation between real estate price and interest rate. And Bioreri (2015) shows that interest rate have a positive significant effect on real etsate performance in Kenya. Interest rate influence the purchasing price of property (Andrew, 2004). Considering the studies incorporating theory, the hypothesis to be tested is

H3: lending interest rate has negative influence on Real estate investment capital growth. Taking this in to account, the time series data from 1994 -2019 is used to determine the influential effect of interest rate on real estate investment in Ethiopia.

Inflation rate

Basically inflation is a big issue for investors and the concern drive many investors in searching for investment that will protect them from inflation. Real estate is one of the prominent and very well known inflation hedges since it protects investors from the effect of inflation (Jack Rubens,Michael Bond & James Webb, 1989) . The study done on Japan, Singapore and China shows that Inflation rate has a negative significant relationship to the real estate investment Hao Fang et al., (2016), Domestic inflation rate together with macro economic instability in the econometric analysis and the political instability in survey are not significant determinants of private investment. (Workie Mitiku (1996). Inflation negatively influence real estate price in Ghana kwame et al., 2019. The study by Sunday et al., 2019, shows that changing inflation is a complex and difficult to achieve growth in real estate investment. David et al., 1997, states that real estate return is affected by inflation rate. Bradley et al., 2003, found that shock in inflation lowers expected real estate investment return. The contradicting results of these studies are to be explored and a hypothesis in this regard is developed to be tested further and is presented as **H4**: Inflation rate has negative influence on Real estate investment capital growth. There by, the study uses Inflation time series data from 1994 -2019 for analysis to determine the influential effect of inflation rate on real estate investment in Ethiopia.

Exchange rate

Exchange rate fluctuation has a positive significant relation with real estate investment return in Nigeria (A.O. Diala, I.O. Kalu & I. Igwe-Kalu,2017) Ethiopian economy is significantly affected by the impact of a foreign currency Minhaj Alam And Gedifew Sewenet Yigzaw, (2020) exchange rate have no effect on real estate housing (Kwame Adu Jack, Frimpong Okyere and Emmanuel K. S. Amoah 2019) , exchange rate is found to be influential according to studies by; karsten lieser et al., (2013). (Warren Moraghen, Boopen Seetanah, Noor Ul Haq Sookia 2020) and Kwame Addae-Dapaah and Hwee L. Loh(2005). Exchange rate affects real estate price (Chitty2015). Exchange rate has massive influence on real estate industry, negative (Gunjan 2013). Considering the relationships and studies above, incorporating the theoretical review, with empirical one, this paper study wanted to test the hypothesis developed as follows **H5**: Exchange rate has negative influence on real estate investment capital growth. There by,

taking the data from 1994-2019 for analysis, the influential effect of exchange rate on real estate investment is determined.

Considering the relationship each independent variable has with the real estate investment capital growth, the model expressed below is described. There by, it will show the influential effect of the independent variable on the dependent variable.

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

y- Real estate investment capital growth
β_0 – constant
β_1 , β_2, β_3 , β_4, β_5 - regression coefficients
ε- Error term
X_1 – Population increase
X_2 – GDP growth
X_3 – Interest rate
X_4 – Inflation rate
X_5 – Exchange rate

After collecting proper data, the data is coded to STATA, software that is used facilitate the analysis of the data. Regression analysis is used to determine the extent to which each independent variables influence the investor's investment in real estate in Ethiopia.

CHAPTER 4

4.1 DATA ANALYSIS

The data analysis part comprises of trend of real estate investment capital and all the independent variables, secondary data analysis, taking data from1994-2019, using time series analysis. The OLS regression is done over time period, taking long run and short run analysis. There by post test estimations is done to check for significant level, respective implication is also drawn from the results.

TREND ANALYSIS FOR THE STUDY VARIABLES

The analysis is done starting from the period 1994 till 2019, taking time series data. This secondary data is gathered and input to a STATA software for analysis.

REAL ESTATE INVESTMENT CAPITAL

Real estate investment capital is the dependent variable taken from EIC from the beginning of 1994 till 2019 where it consists of capitals of real estate investors with operational license. The diagram below shows real estate capital growth within the years specified. The trend shows some highs and low points as shown below,

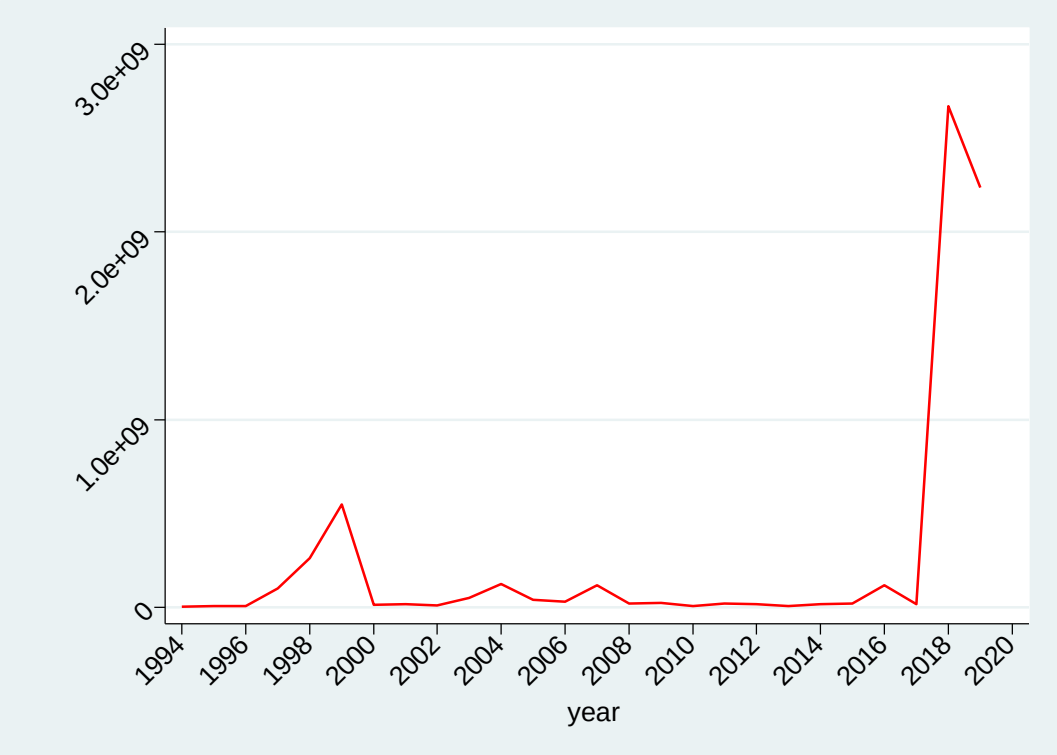

Figure 1: Capital real estate Investment Growth

The trend here in the figure shows that there is a high capital investment between 1998 and 2000. Also the highest peak is seen at the year 2018. From the trend, the fluctuation of the investment capital over the years is clearly seen. The peak value shows the increment of capital investment in real estate at that specific year. It implies that there is high investment and more investors allocate their capital on real estate at that year. This increment can be due to the fact that there's a government change which follow different policies towards investment. It can be explained from the figure with a change in government there comes a change in policy of administration, the result in the figure is explained in terms of boosting policy directive that encourage investment. There is also lowest points show the year's investors have not been investing in real estate. Of many reasons political instability pushes inventors away and discourages and halts their investment business. Many influential factors can be the reason for the fluctuation of the number, which is what this study aims to fulfill.

URBAN POPULATION

Urban population growth, as we know is one of major variables that influence of investors to invest in real estate sector. The result shows the trend of urban growth population over the study period and the data of the growth rate of urban population in Ethiopia is depicted in diagram below from the period of 1994 till 2019.

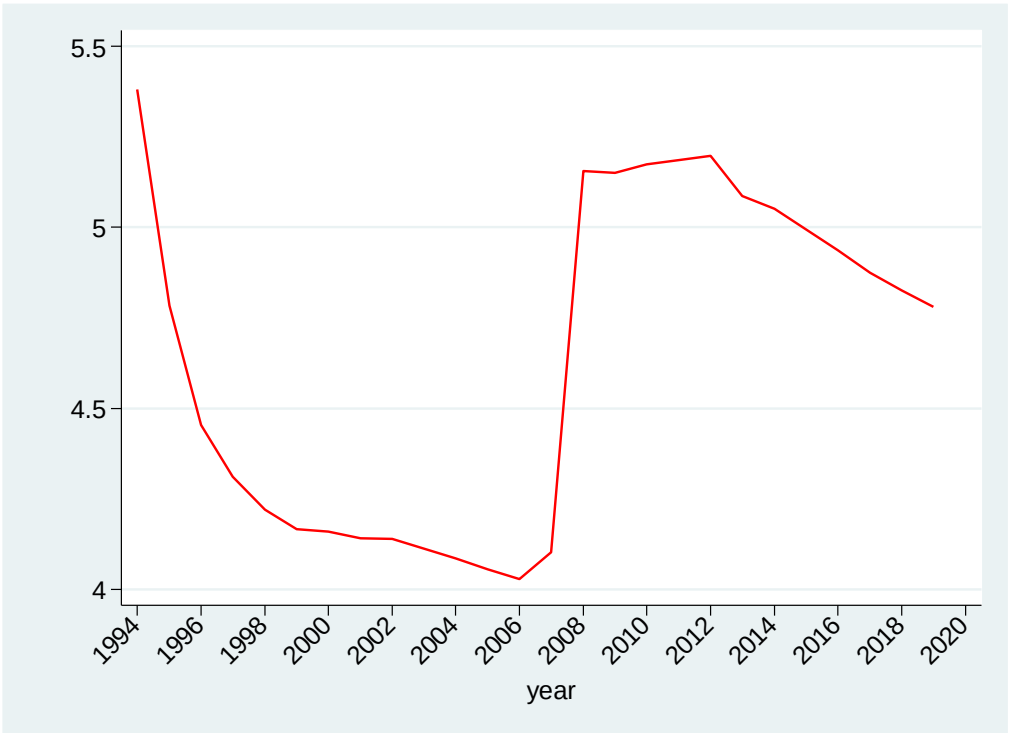

Figure 2: Trend of Urban population growth

From the figure above, we see a trend with in the specified time interval which show the highest and the lowest urban population growth in Ethiopia. From the diagram above, it's seen that the highest growth is recorded in the year 1994 as well as between the year 2008 and 2013. From the graph, we can also see the minimum growth rate of urban population is at the year 2006. Over the time period the graph shows the trend of urban population growth. The high peak shows the high amount of growth of urban population meaning there's a high shift from rural to urban cities. Expansion of urban cities is also another reason for the pick in the growth of the population. In the graph we can see there's a change in urban population growth from 4.1% to 5.1% in the year between 2007 and 2008, which shows a curve on the above figure. This implies that there is a 1% increment that can be explained due to the availability of employment, the need for better living standard, better health care system but the trend also shows the lowest growth points due to family planning, low fertility rate. Nicholas Eberstadt, 2010. This research mainly concern is how this growth influence investors in relation to investing in real estate.

INFLATION RATE

The result shows the trend of inflation rate starting from 1994 to 2019. And the fluctuation of inflation rate values over the study period is shown in the figure below. The fluctuation is seen on each year throughout the specified time interval.

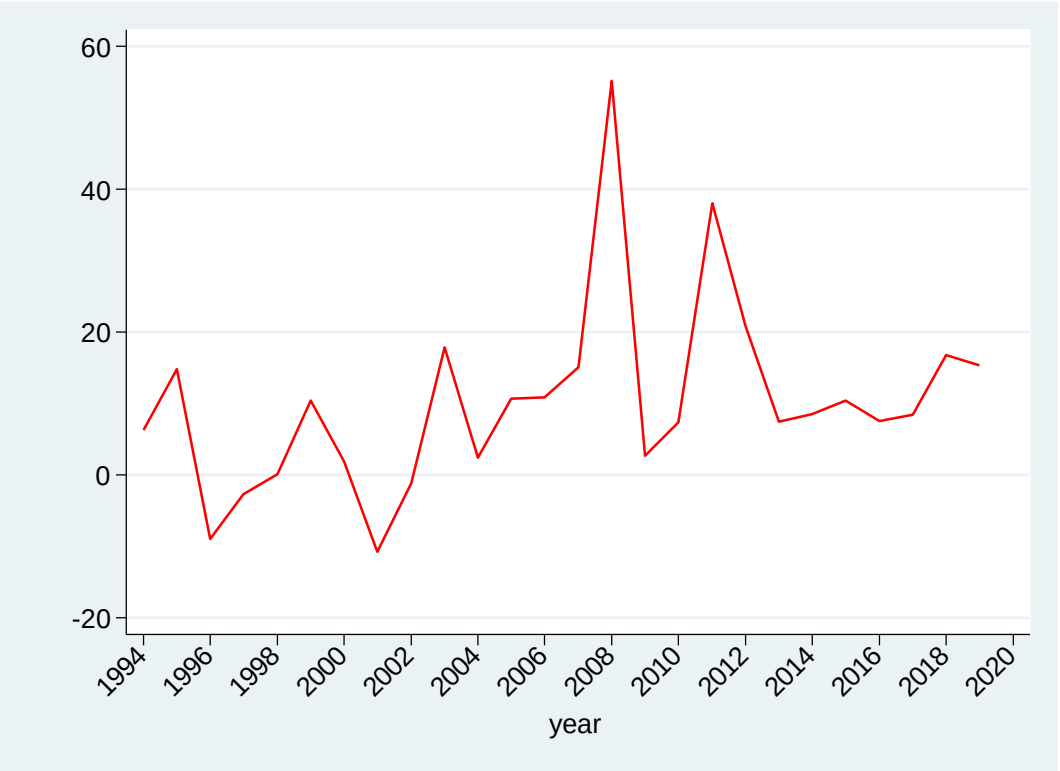

Figure 3: Inflation rate fluctuation

The graph above shows the values of inflation growth rate. Through the trend, the highest growth rate is seen at the year 2008 while the lowest rate is seen at the year 2001 and 1996. The trend shows major fluctuation, where as it's seen the peak of inflation rate which is at the year 2008, it should be kept at balance; If not maintained or unchecked it would cause economic slowdown as well as high unemployment rate. Controlling the excessive increase in inflation rate is one of the necessary requirements for attaining the desired growth level. Miftahu Idris and Rosni Baka (2017).The study is concerned with the influential effect inflation rate had on real estate investment in Ethiopia.

GDP GROWTH

The result shows the value of GDP growth rate starting from 1994 to 2019. The trend with in the specified period of time is shown on the figure below. The result shows a variation of values over each year throughout the study period.

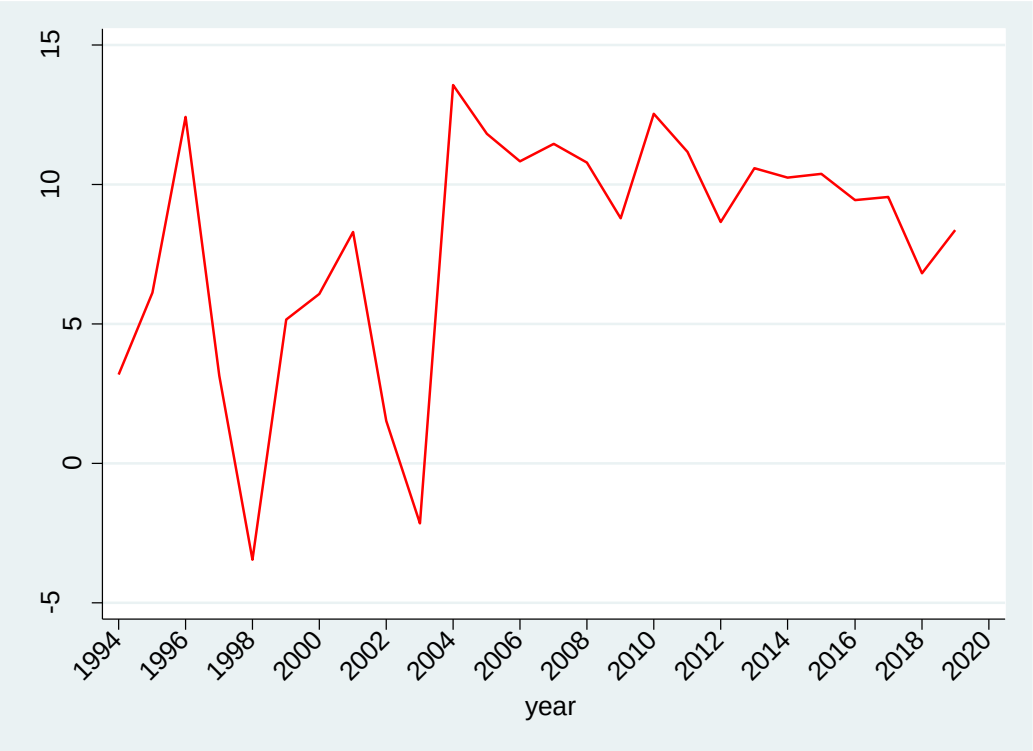

Figure 4: GDP growth

The above figure shows the result of growth rate of GDP value over specified study time period. The trend shows a great variation of values with the highest growth rate at the year 2005 and the lowest values are seen at the year 1998 and 2003. The increase in GDP shows the health of the economy, the trend shows the high and lows of points where GDP reaches its peak value. For high GDP, shows high living standard and high economic growth there by the lowest value at 1998 and 2003 shows that there's no sustainable economic growth at these respective years. The study concern is to show how GDP influence investors to invest in real estate.

EXCHANGE RATE

The trend of exchange rate over the time period of 1994-2019 is shown in the figure below.

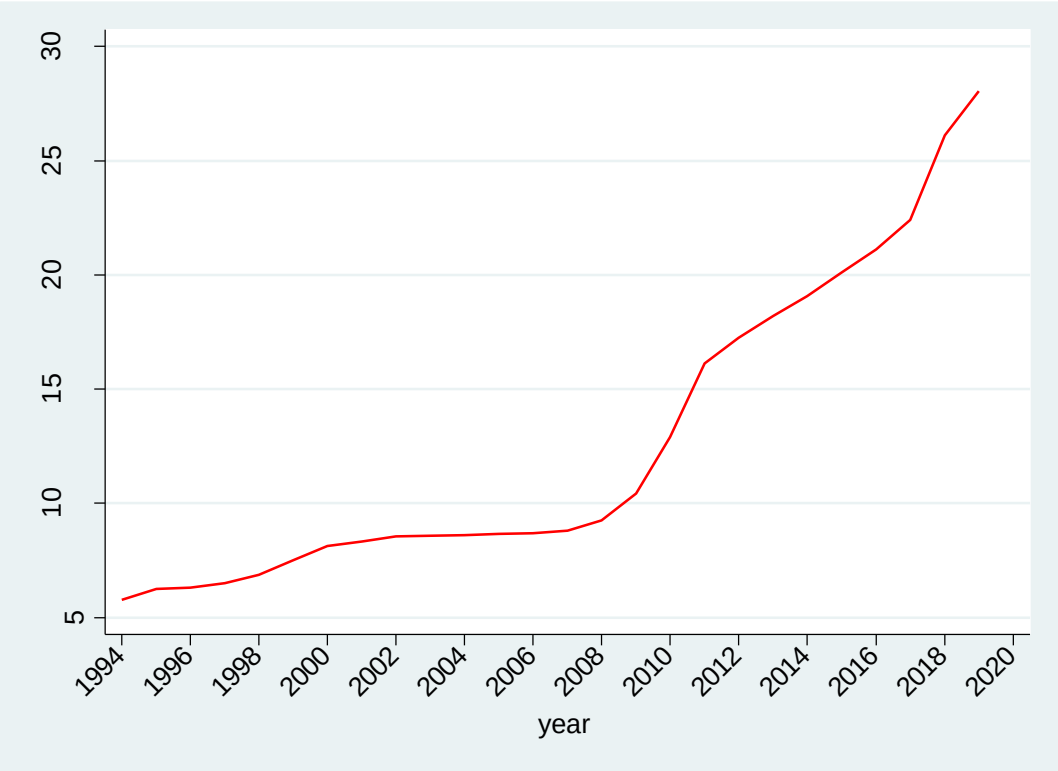

Figure 5: Exchange rate

The table above shows the data of exchange rate over the time period starting from 1994-2019. The trend shows an increment in value throughout the data set period. It shows that it has a minimum value at 1994 and the maximum is at 2019. The increase in exchange rate with time of year for the specified interval of the data set shows that, more foreign investors are encouraged to invest in Ethiopia. There by exchange rate is considered as a major factor in investment which will benefit the country's growth. karsten lieser et al., (2013). Maintaining the exchange rate so as to boost the inflow of currency and output of production will lead to growth. Osinubi et al, 2009

INTEREST RATE

The trend below shows the fluctuation of lending interest rate taken over a specified time interval starting from 1994-2019.

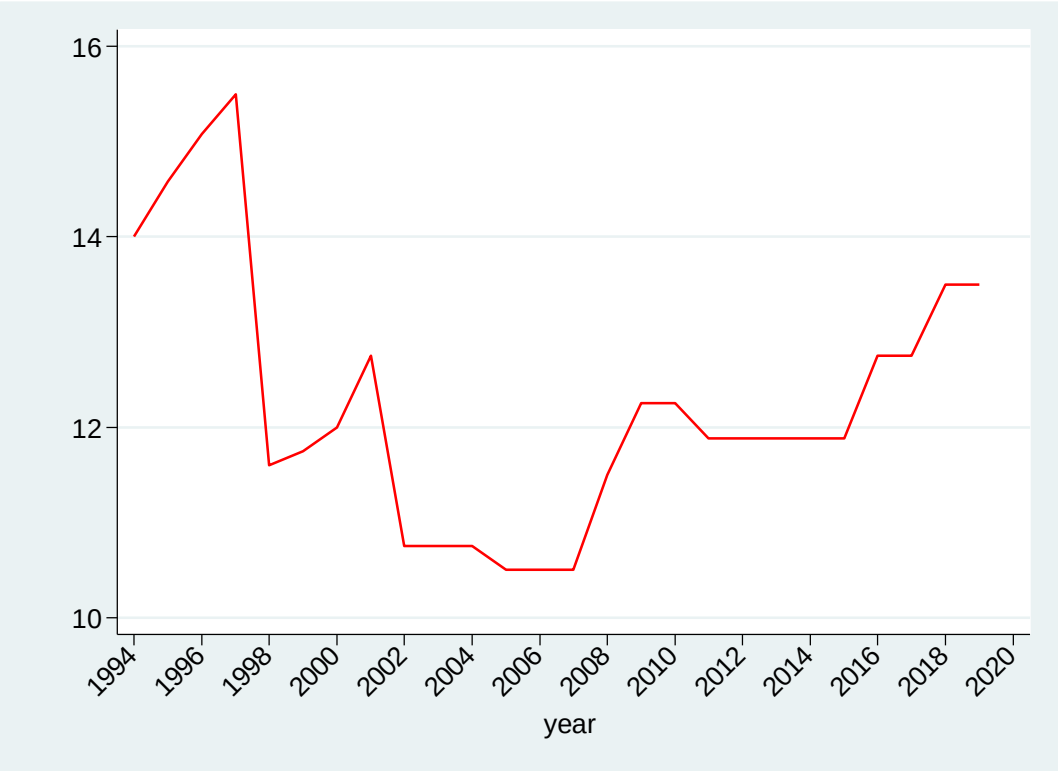

Figure 6: Interest Rate

The table above shows, the data of lending interest rate using time series data starting from 1994- 2019. From the trend it is seen that lending interest is highest point shows a period where the cost of borrowing skyrocketed and the lowest value at the year 2006 which shows that more investors are encouraged to invest in real estate investment in Ethiopia and it will help the investment sector as well as growth of the country's economy Chris O Udoka et al., 2012

SUMMARY STATISTICS

Variable	Obs	Mean	Stand dev.	Min	Max
Capital (million)	26	249	662	23.3	2670
Inflation rate	26	10.2	11.1	-8.48	44.39
GDP	26	7.89	4.41	-3.46	13.57
Urban pgrowth	26	4.64	0.47	4.027	5.38
Interest rate	26	12.266	1.39	10.5	15.5
Exchange rate	26	12.64	6.7	5.77	28.05

Table 1:- summary statistics

From the above summary, it can be shown that the mean capital real estate investment in Ethiopia starting from 1994-2019 in million is 249 it shows a growth in real estate investment capital. And the minimum and maximum value is 23.31 and 267 0 M with a standard variation of 662 from the mean value. This shows the closeness of the variables within the data set. The mean value of urban population growth is 4.64 with minimum value of 4.027 and maximum value of 5.38 with variation of 0.47 value deviation from the mean. There is less variation of the data set which is taken in respect to each year which implies that the data set taken from 1994-2019 data is consistent with less variation from the average or mean value. The mean GDP value is 7.899 with minimum value of -3.458 and maximum value of 13.573. The standard deviation is 3.45 from the mean value. This shows that there is good growth of the economy considering the data from 1994-2019. The mean vale of interest rate is 12.27 having a minimum and maximum value of 10.5 and 15.5 respectively with 1.398 variations from the mean. The mean value of exchange rate is 12.64 with the minimum value of 5.77 and maximum value of 28.05 having a deviation of 6.7 from the mean. The less the value of the variation indicates the closeness of the data set. The mean inflation rate is 10.2 with minimum value of -8.48 and maximum value of 44.39. it also have a standard deviation of 11.1 from the mean , the high variation from the mean shows there's not stable data set which shows the fluctuation of the data considering the data period from 1994-2019, there's high inflation.

4.2 REGRESSION ANALYSIS

In this study the regression is done on the real estate investment capital against the independent variables namely; urban population growth, GDP growth, Inflation rate, Interest rate and Exchange rate.

PRE ESTIMATION TEST

The data used for the secondary data analysis is time series data there by before regression, it is important to check whether the series is stationary or not. The pre estimation test which is the stationary test is needed for this study to oust the effect of time. Stationarity is needed for time series analysis since it influences how the data is predicted and perceived. Gujarati, (2004). Unit root test is used to determine if the data needs to be differenced or regressed. DF (Dickey fuller) test is used for unit root in this study. In DF test, the null hypothesis is that there is a unit root in the auto regression model. The result below present the result of DF test for unit root

done on each study variables. Namely, real estate investment capital, Inflation rate, urban population growth, interest rate, inflation rate and exchange rate.

Variable	DF test statistics	Stationary
Real estate investment Capital	-6.44	1(1)***
Urban population growth	-5.205	1(1)***
GDP growth	-3.511	1(0)**
Interest rate	-4.263	1(1)***
Inflation rate	-3.422	1(0)**
Exchange rate	-4.17	1(1)***

Table 2: Stationary test result

The Critical value; ADF 1%, 5% and 10% (-3.750, 3.00, 2.630) denoting *** and ** I.e. p value <1%, 5% and 10%

In the above result, the p value for the variables is clearly described; the variables are tested using the Dickey fuller test for Unit root for stationary and for those that are found to be non stationary, or with the p-value greater than 5%, it is differenced to make it stationary. All in all, the p values of the variables are: for real estate investment capital the p value is found to be 0.00%, for the urban population growth the p value is 0.00%, p value for exchange rate is found to be 0.07%, for interest rate the p-value is found to be 0.05 %, and for inflation the p value is found to be 1%. Therefore from this, it is can be concluded that the variables have passed for stationary test.

All the variables i.e. dependent and independent variables pass for stationary test. The data is differentiated on some variables to meet the stationary level of the variables. From the test table above, It is shown that the results are a mixture of I(0) and I(1). And using rule of thumb, the series is found to be not over fitted i.e. the R^2 value is not greater than the Durban-watson

value. Considering both method of testing the variables are found to be stationary. There the analysis can continue to study using the sectorial data.

To estimate the relationship between the independent variables and the dependent variable, the statistical method of analysis known as Ordinary least square regression (OLS) is used as a tool of analysis. OLS regression is used due to the reason that all the research questions can be answered and the objectives can be met using the model. And we use STATA for analysis.

Given that the data has passed the pre estimation test also known as stationary test, then data estimation will proceed and the data set is a time series data i.e. that is over time period data, regression analysis is applied. Therefore the analysis is done based on the regression estimation.

```
. reg lncapital gdpgrowth upopgrowth lnexchange interestrate inflation
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Source	SS	df	MS	Number of obs	=	26
				F(5, 20)	=	4.96
Model	46.4087733	5	9.28175467	Prob > F	=	0.0041
Residual	37.4045223	20	1.87022611	R-squared	=	0.5537
				Adj R-squared	=	0.4421
Total	83.8132956	25	3.35253182	Root MSE	=	1.3676

lncapital	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0673927	.031116	2.17	0.043	.0024859	.1322994
upopgrowth	.452238	.2467379	1.83	0.082	-.0624482	.9669243
lnexchange	2.719124	.6807521	3.99	0.001	1.2991	4.139148
interestrate	-3.431584	.8509188	-4.03	0.001	-5.20657	-1.656599
inflation	-.0989437	.0669482	-1.48	0.155	-.2385951	.0407078
_cons	21.25715	3.184036	6.68	0.000	14.61537	27.89893

Table 3: Regression analysis result

On the result above we can see pass the F test which is found to be 0.0041 which is less than 0.01. Therefore the model is fit since the independent captures the dependent variable. And its R square value is 0.55 with adjusted R square of value 0.44. The p test also passes the requirements. The coefficient values of 0.674, 0.45, 2.719, -3.432, -0.989 and 21.2557 which represents the GDP growth, urban population growth, exchange rate, interest rate, inflation and constant value respectively. The independent variables that are significant include the GDP growth, urban population growth, exchange rate and interest rate. But inflation doesn't pass the p test with the value of 0.155 which is greater than 0.1 at the confidence level 1%.

From this result we can observe that real estate investment capital have a positive relation with urban population growth, GDP growth and exchange rate. Given that R square value of 55.4% and adjusted R square value of 44.2%, this shows that the change in the independent variables that is taken under this study contributes to 44.2% of the change in real estate investment capital. This tells us that among the factors that influence the real estate investment capital growth, some percent of the determining factors are studied. This shows that there are remaining variables that have influence on the dependent variable but the author uses factors that can be accurately determined to influence the real investment capital. On the contrary, the real estate investment is negatively related with interest rate and inflation.

From the result of the regression analysis shows the relationship between the real estate investment capital growth and the independent variable can be clearly described using the formula

$$y = 21.256 + 0.45X_1 + 0.674X_2 - 3.432X_3 - 0.989X_4 + 2.719X_4$$

GDP growth has a positive influence on real estate investment capital. That is for every 0.67 percent growth in GDP, the real estate investment capital grows by one percent. Therefore, since the GDP has influence on real estate investment capital growth, the hypothesis that states H2: GDP growth have positive influence on real estate investors is accepted. This interprets as the growth in GDP influences investment in real estate sector considering the growth in the real estate investment capital, which is a way of encouraging investors. Therefore healthy economic growth influences investors to invest in real estate. As it's shown in the figure 4.1, the real estate investment capital has ups and downs but maintaining a healthy economy will attract more investors for investment in real estate bringing more capital to the development of their business. The policy towards increase in GDP is going to bring improvement in real estate investment (Richard Ugochukwu Elile, Sunday S. Akpan, & Valliappan Raju, 2019). Economic variables are the cause of predictability in return of real estate investment G. Andrew Karolyi and Anthony B. Sanders, 1998. There by, the author considering the results of the analysis and the influence on the dependent variable proves to be consistent with the analysis result.

Urban population growth has a positive relation with the real estate investment growth i.e. for every 0.45 percent increase in urban population there will be one percent growth in real estate investment. Since the result shows urban population growth have influence on real estate investment in Ethiopia. while the hypothesis H1: Urban population growth has positive

influence in real estate investment in Ethiopia is accepted. With a huge number of populations, Ethiopia stands second from Africa. Demand for real estate business will boost with increase in urbanization. Therefore the spread of urbanization will attract more investors to engage in real estate investment to accommodate for the huge amount of demand. As there's a growth in urban population, it will create a huge opportunity for real estate investors to be part of the investment sector. Studies by Richard Ugochukwu Elile, Sunday S. Akpan, & Valliappan Raju, 2019 used population growth as a controlled variable, as per their suggestion for further studies, the author in this study found through analysis that urban population growth rate to be major influential factor in real estate investment capital growth.

Exchange rate one of the independent variables is found to have positive relation real estate investment growth. The analysis result shows that for every 2.72 percent increase in exchange rate, there's a unit percent growth in real estate investment. Therefore, considering the positive relationship between exchange rate and real estate investment growth, the hypothesis H5: exchange rate fluctuation has negative influence in real estate investment is rejected. This interpret as, increase in exchange rate, that is, when the value of foreign currency goes higher, it will attract more investors to invest and engage in real estate business. To attract quality investment in large amount, especially countries with low economy like Ethiopia, they will count on foreign direct investment to allocate to the host country, which will not only help to initiate the investment but to share experiences and technologies to attain a high growth. (EIC report, 2019). The analysis result is consistent with A.O. Diala, I.O. Kalu and I. Igwe-Kalu, (2017) Investors and the new entrants to the real estate investment sector consider the macroeconomic factor, Exchange rate, as a major factor to determine the future pattern of the market.

Lending Interest growth rate is shown to have a negative relation with the real estate investment capital growth. For every decrease in percent value of 3.43 in the lending rate there will be inverse increase in a unit percent of real estate investment capital growth. Therefore, considering the negative relationship between lending interest rate and real estate investment capital growth, the hypothesis H3: lending interest rate has negative influence in real estate investment is accepted. It is interpret as when there is available cash i.e. with low lending interest rate, investors would be encouraged to borrow more money and in turn engage in more real estate investment which will also contribute to boost the country's economy. Mean while if lending rate is high, investors will be discouraged to invest and it will also slow down the

investment sector. Increasing depository interest rate will boost the real estate business. Sunday S. Akpan, Mfon N. U. Akpan & Samuel S. Charlie, 2020 which implies that by increasing the depository rate, the cost of borrowing will be high i.e. lending rate will increase. That shows that high the lending rate will intern boost the real estate sector. That is not correct or consistent with the result of the studies analysis. and the author totally disprove this point by the analysis done on the lending rate relation with the real estate investment growth.

Inflation growth rate is that is found to be insignificant towards the real estate investment capital growth. Therefore the result showed that inflation growth rate has no effect on real estate investment capital growth. There for the hypothesis H4: Inflation growth rate have negative influence in real estate investment growth is rejected. Even though real estate is considered as an inflation hedge, for a long run, inflation is found to be insignificant factor and it doesn't contribute to the real estate investment capital growth in Ethiopia. The result of the analysis is found to be consistent with Richard et al., (2019) where, increasing inflation to boost the real estate performance is found to be very complicated, unsure and it is way farfetched and will in turn halt growth. Therefore the study suggests focusing more on other macro economic factors that have tremendous influence on real estate investment capital to boost the economy. A study by workie mitiku,1996 is also found to be consistent with the current study since it states that Domestic inflation rate is not significant determinants of private investment.

4.2 POST ESTIMATION TEST

To acknowledge the model as a well constructed, it ought to fulfil the specified basic standards of the post estimation tests. The tests are;

HETROSKEDASTICITY TEST

Hertoskedasticity is when error term or the disturbance ε happens to have unequal or not constant variance in respect to the data of measured or observed values in a sample. In short Hertoskedasticity is a violation of one of the assumptions of ordinary linear square regression that is, the homoscedasticity where errors have a constant variance. Breusch pagan or weisberg test is used for hertoskedasticity in this study as well considering a null hypothesis H0: constant

variance, with fitted values of real estate capital. The p-value has to pass the 5% significant level. (Maddala, 2009) There by we have lncapital variable and the result shows that it's < 5%.

chi2 (1)	0.86
prob >chi2	0.3533

As a remedy of the problem of hetroskedasticty, for correction the data is changed to log form to bring the variables to measurable size.

AUTOCORRELATION TEST

Autocorrelation test is done to see how similar the residuals in time series is with the lag value of that exact same variable. Basically it is a measure of degree of correlation of same variable in its original value and lagged value. Durban-Watson statistic test is used for this study. In this test the value from 0-2 shows a positive autocorrelation and the values from 2-4 shows negative autocorrelation while the value 2 means no autocorrelation. The acceptable Durban-Watson range is 1.5 to 2.5. This study shows the Durban-Watson d statistic to be 1.858 which is in an acceptable range.

MULTICOLLINARITY TEST

Multicollinearity happens when independent variables are correlated with each other. Multicollinearity violates the assumption of linear regression which states that none of the independent variable have no exact linear relationship among each other. Well known multicollinarity test is Variance inflated factor VIF If the VIF value is greater than 10 then there's multicollinarity problem. On this study, with mean VIF value of 1.6, it passes for having no multicollinarity. The correlation table matrix at the annex below also shows that the variables are not highly correlated with each other, since all their correlation value is less than 0.8.(Gujarati, 2002)

NORMALITY TEST

Normality test is a test that is used to tell the normal distribution of a data set. It measures how well the data fit the model. Sharpie-wilk test is used and the data is normal if the p value is greater than 0.05. And the data is not normal if the value is less than 0.05. (Damodar N. Gujarati, 2002) For this study, the Sharpie-wilk test the value is 0.95 with p value of 0.2376 which is greater than 0.05 requirements (Gujarati, 2002). Therefore the study passes normality test.

OMITTED VARIABLE TEST

Ramsey reset Test is used to see if the model avoids a variable that is important. Therefore in this study the p value is 0.33 which is greater than 0.05, as shown in the annex below, there by the null hypothesis that there is no excluded variable in the model is accepted. This implies that the model is stable or solid.

MODEL SPECIFICATION TEST

In this link test, the aim is check for a possible error. That is, the test adds squared independent variable to the model together with the non squared model and checks regression of the dependent variable. If the squared independent variable becomes significant that means the model is not specified appropriately or that it is non linear. For this study, the variable is found to be insignificant which shows the model is linear.

IMPLICATIONS OF THE STUDY

Taking the data and doing analysis, this implication can be drawn. Therefore, for the study of factors that influences investment in real estate. For the time series dat, regression analysis is done. Different study variables have been used, from which one of them is urban population growth. Using the secondary data analysis it's seen that urban population growth have positive significant relationship with real estate investment capital growth. This shows that urban population growth is one of the major influential factors that positively influence investors when the choice of investment is in line, in order to make decision, to allocate their capital on real estate investment. This also shows that with urbanization boosting in the country, there's a great opportunity for investors to engage in the real estate sector since high urban population

growth implies high demand for housing and facilities. This is consistent with the study Karsten Lieser & Alexander Peter Groh (2013).

GDP is found to have positive significant relationship with real estate investment capital growth. This shows the well being of a country's economy has a great influence in attracting investors to invest in real estate. The economic growth shows how well the living standard is and the capability of individuals to benefit from real estate business. This result of analysis is consistent with the study of Richard Ugochukwu Elile et al., 2019, which shows that RGDP having positive significant effect on real estate performance in Nigeria. Karsten Lieser et al., 2013 which found that economic growth attracts real estate investment. And David and Andy (1997) that shows RGDP positively influences real estate return. It is also found to be consistent with Bradley et al., 2003 and Ewing & Payne (2003) as well. There by, the study found to be consistent with the result attained from analysis.

Interest rate has significant negative influence on real estate investment capital growth. This shows that increasing lending rate will discourage investors to invest in real estate which will affect the growth of the economy. When lending interest rate is kept lower, more investors will be encouraged to borrow. There by, the real estate investment will increase which will boost the economy, this is found to be consistent with the study (Andrew, 2004), with the study Chris O Udok et al., 2012 which shows that increasing lending interest rate have inverse relation with the growth of investment. And it is found to be consistent with IMF, 2003 which shows the negative relation. But it is inconsistent with the study by Sunday S. Akpan et al., 2020, which found that hiking depository interest rate that implies increasing cost of lending will increase real estate performance in Nigeria. It is also found to be inconsistent with Bioreri (2015) which found a positive significant relation with real estate investment return.

Inflation rate is found to have no influence in real estate investment. This shows that real estate investors are not affected by inflation for real estate investment which implies that the real estate investors are not inflation receivers. The study is inconsistent with the study by Sunday S. Akpan et al., 2019 which shows positive significant effect on real estate performance in Nigeria and also it is inconsistent with Jack Rubens et al.,1989 which presented real estate as an inflation hedge. It is also inconsistent with Kwame et al., 2019, which found negative influence on real estate price. It is also inconsistent with the study David et al., 1997, which states real estate return is affected by inflation rate. Is it also found inconsistent with Bradley et al., 2003,

It states that shock in inflation lowers expected real estate investment returns but it is found to be consistent with (Workie Mitiku, 1996), which is found to be insignificant determinant factor.

Exchange rate has positive significant effect on investors to invest in real estate. This indicates that the increase in exchange rate will attract more foreign investors to invest in real estate. This will not only increase the investment but also raise the inflow of foreign currency. The study found consistent study by karsten lieser et al., (2013). (Warren Moraghen, Boopen Seetanah, Noor Ul Haq Sookia 2020), Kwame Addae-Dapaah and Hwee L. Loh(2005). Foreign investment is directly influenced by real exchange rate movement Oluremi Ogun, Festus O. Egwaikhide and Eric K. Ogunleye (2012) and A.O. Diala et al., 2017 which found significant positive relation with real estate investment return in Nigeria and also with the study Gunjan 2013, which found that exchange rate affects real estate price. But the author found inconsistency with the study by Sunday S. Akpan et al., 2019 and it is inconsistent with Chitty 2015, which founds a negative significant effect on real estate performance. Inconsistent with Kwame et al., 2019 which found exchange rate has no effect on real estate housing.

All in all, for an investors to invest in real estate the influential factors they have to look for are GDP, interest rate, urban population growth and exchange rate while it is found that the factor that have no influence on real estate investment is found to be inflation rate.

CHAPTER 5

5.1 CONCLUSION AND RECOMMENDATION

This chapter will provide the conclusion and recommendation of the study paper.

5.1.2 CONCLUSION

The objective of the paper is to determine the factors that influence investors to invest in real estate in Ethiopia. The study uses independent variables such as inflation rate, interest rate, urban growth grate, GDP growth and exchange rate. And real estate investment capital growth is the dependent variable. Using time series analysis starting from 1994- 2019 data, the effect of each independent variable against the dependent variable is analyzed using regression.

Urban population growth has positive influence on real estate investment capital growth.. This shows that an increase in urban population growth will attract more investors to accommodate the high demand which will boost the real estate investment business

GDP growth has a positive significant influence on real estate investment capital growth. This shows that a healthy economy with high GDP will attract more investors to invest in real estate business.

Lending interest rate has negative significant influence on real estate investment capital growth. That is lowering the lending rate will attract more investors to invest in real estate increasing the investment capital.

Inflation rate is found to have no effect on real estate investment capital growth. This shows that real estate investors are not the inflation receivers.

Exchange rate has positive significant effect on real estate investment capital growth. High exchange rate will attract more investors by increasing FDI which will in turn boost the economy.

5.2.2 RECOMMENDATION

- Policies need to focus on increasing GDP to attract investors to invest in real estate investment.

- Policies should be smooth enough for investors to participate in the real estate business in order to accommodate the high demand of urban population growth through investment
- Lending interest rate shall not pass the limit (kept at the low), to encourage investors to invest more on real estate investment
- Exchange rate shall be kept at a level of increasing the value to boost the inflow of foreign direct investment at the same time increasing local production

FURTHER STUDY SUGGESTIONS

The study focuses on influential factors that affect investors to invest in real estate sector. The researcher suggests studying more on qualitative aspect of the topic to add to the current study and further research on different influential factors incorporating major study variables is also suggested.

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ANNEX

```
. dfuller lncapital

Dickey-Fuller test for unit root                   Number of obs   =        25

                                 ———— Interpolated Dickey-Fuller ————
                 Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value            Value
———————————————————————————————————————————————————————————————————————————
 Z(t)            -2.494           -3.750            -3.000           -2.630
———————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.1169

. dfuller d.lncapital

Dickey-Fuller test for unit root                   Number of obs   =        24

                                 ———— Interpolated Dickey-Fuller ————
                 Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value            Value
———————————————————————————————————————————————————————————————————————————
 Z(t)            -6.440           -3.750            -3.000           -2.630
———————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller gdpgrowth

Dickey-Fuller test for unit root                   Number of obs   =        25

                                 ———— Interpolated Dickey-Fuller ————
                 Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value            Value
———————————————————————————————————————————————————————————————————————————
 Z(t)            -3.511           -3.750            -3.000           -2.630
———————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.0077
```

```
Dickey-Fuller test for unit root                   Number of obs   =        25

                                 ———— Interpolated Dickey-Fuller ————
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
——————————————————————————————————————————————————————————————————————————————
 Z(t)             -1.952           -3.750            -3.000            -2.630
——————————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.3078

. dfuller d.upopgrowth

Dickey-Fuller test for unit root                   Number of obs   =        24

                                 ———— Interpolated Dickey-Fuller ————
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
——————————————————————————————————————————————————————————————————————————————
 Z(t)             -5.205           -3.750            -3.000            -2.630
——————————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller lnexchange

Dickey-Fuller test for unit root                   Number of obs   =        25

                                 ———— Interpolated Dickey-Fuller ————
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
——————————————————————————————————————————————————————————————————————————————
 Z(t)              1.277           -3.750            -3.000            -2.630
——————————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.9965

. dfuller d.lnexchange

Dickey-Fuller test for unit root                   Number of obs   =        24

                                 ———— Interpolated Dickey-Fuller ————
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
——————————————————————————————————————————————————————————————————————————————
 Z(t)             -2.298           -3.750            -3.000            -2.630
——————————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.1727

. dfuller dd.lnexchange

Dickey-Fuller test for unit root                   Number of obs   =        23

                                 ———— Interpolated Dickey-Fuller ————
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
——————————————————————————————————————————————————————————————————————————————
 Z(t)             -4.170           -3.750            -3.000            -2.630
——————————————————————————————————————————————————————————————————————————————
MacKinnon approximate p-value for Z(t) = 0.0007
```

```
. dfuller interestrate

Dickey-Fuller test for unit root                   Number of obs   =        25

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.874            -3.750            -3.000            -2.630
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3445

. dfuller s.interestrate

Dickey-Fuller test for unit root                   Number of obs   =        24

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.263            -3.750            -3.000            -2.630
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0005

. dfuller inflation

Dickey-Fuller test for unit root                   Number of obs   =        25

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.422            -3.750            -3.000            -2.630
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0102
```

SUMMARY

```
. sum capital inflwb ggdpgw ubgr interstrate exchange
```

Variable	Obs	Mean	Std. Dev.	Min	Max
capital	26	2.49e+08	6.62e+08	2331500	2.67e+09
inflwb	26	10.2018	11.10332	-8.484249	44.39128
ggdpgw	26	7.89883	4.413136	-3.458139	13.5726
ubgr	26	4.636595	.4711947	4.02769	5.380532
interstrate	26	12.26577	1.397867	10.5	15.5
exchange	26	12.63658	6.704159	5.7744	28.0543

REGRESSION

```
. reg lncapital gdpgrowth upopgrowth lnexchange interestrate inflation
```

Source	SS	df	MS	Number of obs	=	26
				F(5, 20)	=	4.96
Model	46.4087733	5	9.28175467	Prob > F	=	0.0041
Residual	37.4045223	20	1.87022611	R-squared	=	0.5537
				Adj R-squared	=	0.4421
Total	83.8132956	25	3.35253182	Root MSE	=	1.3676

lncapital	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0673927	.031116	2.17	0.043	.0024859	.1322994
upopgrowth	.452238	.2467379	1.83	0.082	-.0624482	.9669243
lnexchange	2.719124	.6807521	3.99	0.001	1.2991	4.139148
interestrate	-3.431584	.8509188	-4.03	0.001	-5.20657	-1.656599
inflation	-.0989437	.0669482	-1.48	0.155	-.2385951	.0407078
_cons	21.25715	3.184036	6.68	0.000	14.61537	27.89893

POST ESTIMATE TESTS

HETROSKEDASTICITY TEST

```
. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of lncapital

         chi2(1)      =     0.86
         Prob > chi2  =   0.3533
```

AUTOCORRELATION TEST

```
. estat dwatson

Durbin-Watson d-statistic(  6,    26) =  1.858023
```

MULTICOLLINARITY TEST

. vif

Variable	VIF	1/VIF
interestrate	2.15	0.465347
gdpgrowth	1.60	0.626732
upopgrowth	1.59	0.628855
lnexchange	1.51	0.664217
inflation	1.17	0.857002
Mean VIF	1.60	

CORRELATION

. corr lncapital gdpgrowth upopgrowth lnexchange interestrate inflation
(obs=26)

	lncapi~l	gdpgro~h	upopgr~h	lnexch~e	intere~e	inflat~n
lncapital	1.0000					
gdpgrowth	0.1165	1.0000				
upopgrowth	-0.0747	-0.3038	1.0000			
lnexchange	0.3075	0.2898	-0.0472	1.0000		
interestrate	-0.3006	0.4050	0.3192	0.5034	1.0000	
inflation	-0.1732	0.1751	-0.0864	0.3447	0.2591	1.0000

OMITTED VARIABLE TEST

. ovtest

Ramsey RESET test using powers of the fitted values of lncapital
Ho: model has no omitted variables
F(3, 17) = 1.21
Prob > F = 0.3348

MODEL SPECIFICATION TEST

```
. linktest
```

Source	SS	df	MS	Number of obs	=	26
				F(2, 23)	=	17.19
Model	50.2163194	2	25.1081597	Prob > F	=	0.0000
Residual	33.5969762	23	1.4607381	R-squared	=	0.5991
				Adj R-squared	=	0.5643
Total	83.8132956	25	3.35253182	Root MSE	=	1.2086

lncapital	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
_hat	-3.693481	2.912497	-1.27	0.217	-9.718439	2.331477
_hatsq	.1357482	.0840809	1.61	0.120	-.0381863	.3096827
_cons	40.32608	25.16786	1.60	0.123	-11.73761	92.38977

NORMALITY TEST

```
. swilk ui
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
ui	26	0.95045	1.417	0.714	0.23764

```
.
```