THE RELATIONSHIP BETWEEN INTEREST RATES AND REAL ESTATE INVESTMENT IN KENYA

BY

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DECLARATION

This research project is my original work and has not been presented for any other award in any other institution of learning.

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<u>APPROVAL</u>

This research project has been submitted with my approval as the University Supervisor.

Supervisor

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DEDICATION

I humbly dedicate this work to my husband Mr. Ndirangu, son Matthew and parents, thank you for your support when I needed it most.

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ABSTRACT

The purpose of the study was to portray the relationship between interest rates and real estate investment with a focus of Kenya. The real estate sector being one of the major sectors of the economy in Kenya has been largely affected by fluctuating interest rates. The study sort to show case this effect by showing how house prices are affected by the cost of borrowing. Real estate is a large investment which requires huge capital that most ordinary Kenyans cannot raise, therefore they turn to banks to finance this cost of construction or purchase. The cost of borrowing in all banks is driven by the real interest rate which is fuelled or largely accommodates inflation. Inflation is the key driver of interest rates. The banks are highly supervised and are under the obligatory role of the Central bank of Kenya which determines the base lending rate accommodating all factors in the economy, based on this the bank can then come up with their own mortgage rates or borrowing rates a few basis points from the Central Bank lending rate.

The research problem was analysed through the use of the simple user cost model. The target population of this study was all 35 mortgage lending banks in Kenya as at November 2010, from which a sample of 18 was drawn to analyse the research problem. Data for the purpose of the study was collected using data collection forms to 18 mortgage lending banks that have been running the mortgage product from 2007-2011.

Study findings indicated that indeed interest rates affect house prices, most real estate retail borrowers and investors alike are forced to increase the house prices to cater for the cost of borrowing and to also break-even.

The following recommendations are made. Firstly, the government should play a more active role in control of interest rates through the Central bank of Kenya frequent bank supervisions as most commercial banks are out to fleece lenders and stabilize inflation through the implementation of tough monetary policies. Secondly, The property market should be controlled through a house pricing index to protect the rights of both the owners and the investors. Thirdly, the Central Market Authority should continuously review the

regulations of Real Estate Investment Trusts in a bid to protect the interests of real estate investors.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

1.1.1   Interest Rates

Interest rate is defined as a cost to the borrower mainly because it is the rate at which the borrower pays back the lender for the use of their money. For example, a small company borrows capital from a bank to buy new assets for their business, and in return the lender receives interest at a predetermined interest rate for deferring the use of funds and instead lending it to the borrower. Interest rates are normally expressed as a percentage of the principal for a period of one year. Interest rates targets are also a vital tool of monetary policy and are taken into account when dealing with variables like investment, inflation, and unemployment. Similarly, Amadeo (2012) in his studies found out that interest rate is the percent charged, or paid, for the use of money. It is charged when the money is being borrowed, and paid when it is being loaned. This is why it is so commonly known as the cost of borrowing. The interest rate that the lender charges is a percent of the total amount loaned. Moreover, the interest rate that an institution, such as a bank, pays to hold your money is a percent of the total amount deposited. Anyone can lend money and charge interest, or hold deposits and pay interest. However, it's usually the function of banks to to make loans or hold deposits. Banks get the money to loan out from the deposits made by people who keep their savings or checking accounts with them where they convince people to make deposits by paying interest rates. Banks are paying depositors for the right of using their money. However, they charge borrowers a little higher interest rate than they pay depositors for that same money so they can profit for providing these services. Banks want to charge as much interest as possible on loans, and pay as little as possible on deposits, so they can be more profitable. At the same time, banks are competing with each other for those same deposits and loans. This competition keeps interest rates in similar range. However overtime, the

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Central bank, has found the need to control these interest rates, to avoid lenders being fleeced by banks.

According to Omengo (2012), the interest rates in Kenya have risen uncontrollably since October 2011, the Central Bank of Kenya (CBK) increased the Central Bank Rate (CBR) from 7% to 18% in an effort to tame runaway inflation and stabilise the weakening shilling. Consequently commercial banks increased their lending rates from low figures of 11% to about 25%.While the intervention by the CBK brought almost immediate relief to the economy, the effects of high interest rates are still yet to be felt. The Monetary Policy Committee of the CBK in February 2012 decided to maintain the CBR at 18% and recently to 16%. Upholding the CBR up while economic indicators show recovery will just delay the much desired market equilibrium. Wafula (2012) in his report, found out that interest pressure is widely felt locally, as Gem MP Jakoyo Midiwo has launched a fresh attempt to control interest rates, just three months after a similar move failed in April he said the parliamentarians are going to propose amendments to the Finance Bill 2012 to provide for controls on interest rates charged by State-controlled National Bank, Consolidated Bank and Kenya Commercial Bank (KCB) to protect Kenyans from being fleeced by the lenders.

Although most of the assumptions and expectations made by the Central Banks or Reserve Banks by countries (and economies) that by technically lowering the interest rate would produce the effect of increasing investments and consumptions, however, low interest rate by macro-economic policy is also risky and would also lead to the creation of massive economic bubble, when great amount of investments are poured into the real estate market and stock market, as what Japan experienced in the late 1980s and early 1990s that resulted in the large numbers of accounts of unpaid debts to the Japanese Banks and bankruptcy of these banks and caused stagflation to the local Japanese Economy(Japan being the second largest economy at the time), with exports becoming the last pillar for the growth of Japanese economy throughout the rest of 1990s and early 2000. Bhattarai (2006) added that changes in the interest rates have profound impacts on saving and consumption behaviours of households, on investment and capital

accumulation decisions of firms, and on portfolio allocation of domestic and foreign traders in the financial and exchange rate markets. It is generally agreed that these changes affect the aggregate demand and aggregate supply positions in an economy that may occur immediately or over a lag of up to two years; like the 2008 financial crisis effect, are still being felt to date.

1.1.2   Real Estate Investment

Real estate is property consisting of land and the buildings on it, along with its natural resources such as crops, minerals, or water, immovable property of this nature; Real estate Investment is an interest vested on real property, buildings or housing in general. It is the business of buying, selling, or renting land, buildings or housing. Cummings (1997) adds that Real Estate Finance and Investment is a branch of finance, which deals with investing money or wealth in real estate. Real estate finance deals with the allocation, generation and use of monetary resources over time, which is invested in the real estate business. Like any other aspect of finance, real estate finance also has risks associated with it and the effective management of assets, which will maintain or increase in value over time, i.e. the investment yield of the project.

In any economy, long-term finance is one of the key driver of economic growth. Ndung'u (2010) talked of Long-term finance allowing for the provision of affordable and adequate housing which is a major thrust of Kenya's Vision 2030. The Kenya real estate boom has arisen because many investors have switched their savings from the low-yield treasury bills to the hugely profitable property market. This has been complemented by banks introducing and aggressively marketing various mortgage products. The comparatively low Kenya property prices are indicative of a strong capital growth potential and reasonable rental yields.

Price growth in both the Kenyan capital Nairobi and the country's Indian Ocean coastal hotspots outstripped all other locations, with Nairobi property chalking up a 25% increase last year."Safe haven" isn't necessarily a phrase many people would use to describe the country in a global context, but compared with many of its neighbours it is just that,

according to Woodhams (2012), Kenya's rapid economic development is attracting domestic and international private equity, with particular growth in remittances flowing from Kenya's increasingly affluent diaspora. However, recent events such as the kidnapping of tourists staying on the north coast and a sharp rise in interest rates to almost 25% also highlight the potential vulnerability of some emerging prime markets. Proam (2012).

Leke, Lund, Roxburgh, and Wamelen (2010) in their report, Africa's economic pulse has quickened, infusing the continent with a new commercial vibrancy. Real GDP rose by 4.9 percent a year from 2000 through 2008, more than twice its pace in the 1980s and '90s. Telecommunications, banking, and retailing are flourishing. Construction is booming. Private-investment inflows are surging. Ingersoll (2012) reiterated that prices of houses have dropped about one-third over the past five years and the overall rental market has strengthened. There are a variety of real estate investment possibilities when buying rentals including commercial, multi-family, and single-family homes. Warren Buffett (2012) *made the following statement on CNBC, "If I had a way of buying a couple hundred thousand single-family homes…I would load up on them."He went on to make more remarks concerning low interest rates, low prices and valid points regarding why he likes single-family homes.* Ingersoll applauds Mr. Buffett. He has an accurate picture of the housing market as an overall investment platform. He also remarked that, *"single-family homes are cheap now."*According to Portman (2008), in most states, when a landlord defaults on a mortgage that was recorded before the tenant's lease was signed, the owner's default and subsequent foreclosure will wipe out the lease. Since most leases are for a year or two, and many mortgages pre-date those leases, most tenants get shafted when the owners default.

1.1.3   The relationship between Interest rates and Real Estate Investment

Real estate investment requires huge capital, most people are not able to afford on savings, and therefore they turn to banks for a loan. Banks charge an interest rate for lending their funds depending on the length of the loan and security or otherwise referred

to as collateral. The interest rate charged to the borrower is based on the Central Bank Base Rate (CBR), which the Central bank uses to control interest rates.Nguyen (2011) in his research, found out that Interest rates have a major impact on the real estate markets. Changes in interest rates can greatly influence a person's ability to purchase a residential property. That is because as the interest rates fall, the cost to obtain a mortgage to buy a home decreases, which creates a higher demand for real estate, which pushes prices up. Conversely, as interest rates rise, the cost to obtain a mortgage increases, thus lowering demand and prices of real estate.

Nielsen (2010) in his article on the influence of interest rates on the mortgage industry talked of the basics in acquiring a mortgage. Mortgages come in two primary forms, fixed rate and adjustable rate, with some hybrid combinations and multiple derivatives of each. A basic understanding of interest rates and the economic influences that determine the future course of interest rates can help consumers make financially sound mortgage decisions, such as making the choice between a fixed-rate mortgage or adjustable-rate mortgage (ARM) or deciding whether to refinance out of an adjustable-rate mortgage.

According to Kuttner (2012) the relationship between interest rates and property prices has come under intense scrutiny since the housing boom of the mid-2000s, and the ensuing financial crisis of 2007–09. When interest rates are down, credit affordability is up, increasing demand for houses, pushing house prices up and when interest rates are high, credit becomes expensive, demand lowers and house prices fall. Two views have emerged from this experience. One is that monetary policy should respond more proactively to asset price rises, and especially to excesses in the property markets. According to this view, by "leaning against the wind" central banks can prevent or attenuate asset price bubbles, and thus promote financial stability.

1.2 Research Problem

Prices in most areas are influenced by demand and supply forces as research has shown David (1990). But for some reason, the real estate market prices in other different areas seem to be dictated by what comes across as quite a different set of forces.Shifts in the

ability or willingness of banks to lend can affect the borrower's cost of funds and investment. Both a higher extent of financial constraint and weaker corporate governance are associated with higher real estate holdings. Look at what happened in the 2008 financial crisis, sub-prime mortgages were not managed efficiently and effectively, the banks aimed at making a quick buck at the expense of mortgage borrowers. According to Davis (2008), a subprime mortgage is a type of loan granted to individuals with poor credit histories (often below 600), who, as a result of their deficient credit ratings, would not be able to qualify for conventional mortgages. Because subprime borrowers present a higher risk for lenders, subprime mortgages charge interest rates above the prime lending rate. There are several different kinds of subprime mortgage structures available. The most common is the adjustable rate mortgage (ARM), which initially charges a fixed interest rate, and then converts to a floating rate based on an index such as LIBOR, plus a margin. The better known types of ARMs include 3/27 and 2/28 ARMs. ARMs are somewhat misleading to subprime borrowers in that the borrowers initially pay a lower interest rate. When their mortgages reset to the higher, variable rate, mortgage payments increase significantly. This is one of the factors that lead to the sharp increase in the number of subprime mortgage foreclosures in August of 2006, and the subprime mortgage meltdown that ensued. Many lenders were more liberal in granting these loans from 2004 to 2006 as a result of lower interest rates and high capital liquidity. Lenders sought additional profits through these higher risk loans, and they charged interest rates above prime in order to compensate for the additional risk they assumed. Consequently, once the rate of subprime mortgage foreclosures skyrocketed, many lenders experienced extreme financial difficulties, and even bankruptcy.

Sekine et al. (2003) studies show that, although it is conceivable that, for the construction and real estate industries, real estate prices which constitute the value of collateral and profitability are the most important factor in determining bank lending, it is a prevalent feature in Asian economies and elsewhere that all types of firms are often required to pledge collateral in order to obtain financing a loan. An important difference of Chen et al (2006) from Sekine et al. (2003) is that Sekine points out on property prices being the main determinant of the cost of borrowing while Chen links property prices as merely a

proxy to collateral change being the main determinant of cost of borrowing; Chen testings are mainly motivated by the change in collateral value. Cuevas (1988) argued that financial regulations usually constrain the range of interest-rates that banks can charge on loans. However, Cuevas and Graham, (1985) studies show that lenders as price-setters of explicit and implicit charges on loans which can either increase or lower the cost of borrowing. The interpretation of this result in the Honduras study (1983 survey) was that the range within which interest rates could vary was too narrow to elicit any meaningful response by the participants in the market .

Oremo (2012) studied the role of the government in the cost of borrowing and how it goes towards improving the real estate industry. He found out that there is need for more collaboration between the public and private sector to improve the investment environment considering Kenya's annual housing demand stands at 150,000 yet supply is only 25,000 units, resulting in a shortage of 125,000 units. Policies and actions of the government can also be a major influence on interest rates. The buying and selling of treasury securities in the financial markets have a major impact on the supply of money, credit availability, and interest rates. A large purchase of Treasuries by the Central bank causes new funds to be injected into the banking system, which then has more money to lend, leading to lower interest rates. This study therefore seeks in analysing the factors that contribute to the cost of borrowing being high and how they can be controlled to increase real estate investment.

1.3 Research Objective

The objective of the study will be to find out the relationship between interest rates and real estate investment.

1.4 Significance of the Study

The study will be able to increase the knowledge of borrowers in real estate financing and thus providing an opportunity for them to expand their portfolios. They may learn the advantages of moving to the diaspora to borrow at low interest rates while at the same time increase their portfolios locally through arbitrage hence deciding between

conventional and creative financing methods. They may also uncover real estate tax loopholes that increase cash flow.

Given the strong ties between housing markets and mortgage markets, residential real estate agents who wish to better serve their clients should have a good understanding of the system used to funnel investment capital into the hands of mortgage borrowers. Real estate agents who are more familiar with the residential financing process may be able to close more transactions and thus earn greater compensation.

New entrants into the mortgage financing business (banks and financiers) may borrow a strategy on how to position themselves on the market, benefiting themselves as well as the client.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents literature review on the relationship between real estate investment and interest rates. The chapter is organized as follows. First is the theoretical review. Second, review of empirical studies both locally and globally, then general literature review and conclusion drawn from the studies

2.2 Theoretical Review

Although people often talk as if theory and practice are different things, as in "that is only theoretical," nothing is more practical than a good theory. Theory helps make sense of complex situations by directing attention to key issues and by guiding methods of analysis. Kummerow (2000).

2.2.1 Price Theory

Theory of price asserts that the market price reflects interaction between two opposing considerations. On one side are demand considerations based on marginal utility, while on the other side are supply considerations based on marginal cost. An equilibrium price is supposed to be at once equal to marginal utility from the buyer's side and marginal cost from the seller's side (Jimmy, 2009). Real estate is a business, not a profession. Real estate is sometimes inaccurately spoken of as a profession, but it is essentially a business. The principal divisions of the real estate business are investment, operation and agency Kimmons (2010). These differ from one another according to the aims of the persons engaging in them and the methods by which those persons expect to make their gains. According to Glaeser et al. (2008) prices almost surely must be driven primarily by construction costs.

2.2.2 Transaction Costs Theory

The Theory of transaction costs as a proxy for the cost of borrowing is explained by Cuevas, Graham and Masini (1988) in which he studied Development Finance in Rural Niger; Structural Deficiencies and Institutional Performance, the low borrowing transaction costs observed were better explained by an undeveloped and deficient credit delivery system, where conventional loan processing practices did not exist. Here the burden of transaction costs in the system relied heavily on the institutions involved, rather than on the ultimate borrowers. Nevertheless, even in this case the level of transaction costs as a proportion of explicit-interest charges was certainly non-negligible. With the exception of Peru and the Philippines, borrowing transaction costs played an important role as implicit prices in this credit market. Their magnitude certainly could not be ignored by prospective borrowers. Conceptually, this approach was based on a credit-rationing framework that considered lenders as price-setters of explicit and implicit charges.

2.2.3 Interest rates Theory

Interest rates are the annual charge for borrowing funds, usually specified as a percent of the amount borrowed. Changes in interest rates affect the overall expense of borrowing and thus expenditures undertaken with the borrowed funds. Higher interest rates tend to decrease expenditures and lower interest rates lead to an increase in expenditures. The expense of borrowing these funds depends on interest rates. Higher interest rates can add to the overall cost of these expenditures. Lower interest rates can reduce the overall cost of these expenditures. This means that changes in interest rates can induce changes in consumption and investment spending, and thus aggregate demand.AmosWEB (2012)

2.3 Empirical Review

A lot of researches such as studies of Sanders (1997), He, Webb, & Myer (2003), and Bredin, O'Reilly, & Stevenson (2007) have shown that the performance of the investment in real estate in capital market was affected by interest rate.

Most real estate purchases are highly leveraged and the change in interest rate could affect buyers' purchasing decision as shown in Childs, Ott, & Riddiough (1996) that the uncertainty in interest rate and the expectation on future levels of interest rate affected mortgage loan decision. Higher interest means higher financing cost. People might delay their purchase causing demand for renting real estate to increase. Then, the occupancy rate and the rent price will increase. In addition, if the increase in interest rate is caused by inflation, the real properties price will increase too. Countries that experienced the highest rate of house price appreciation (Spain, France, US, Britain, and Australia) from 2001 to 2005 all had pronounced reductions in real mortgage rates. Yet some other notable countries with low mortgage rates (Germany and Japan) did not see much house price appreciation at all. However, at the end of the boom in 2006 and 2007, real mortgage rates started to head up, yet house prices also kept rising in most countries. It is also instructive to consider that global commercial real estate prices boomed over the same time period. Between 2002 and 2006, annualized returns to owning public real estate companies ranged between 12 and 29 percent in the US, Canada, Britain, Australia, France, Japan, and Singapore. These real estate returns greatly outpaced returns in the broader stock markets in these countries. This was not simply a matter of rising publicly-traded securities, private values surely increased as much or more as many public companies were taken private using highly leveraged transactions over this time period. We draw several conclusions from these global data. First, the extremely high levels of returns to global real estate cannot easily be explained by an uptick in economic growth. Second, arguments that rely on securitization or lax regulation in any particular country appear inconsistent with the global nature of the boom. Instead, declines in global, long-term real interest rates appear to coincide with the time period when global property prices began to accelerate. However, declining real interest rates also cannot tell the whole story. Once the boom got going, prices accelerated even as real interest rates

started to rise in 2006 and 2007. Plummeting lending standards and speculation by purchasers almost surely played a role in the acceleration of real estate prices above fundamentals in later years of the boom. This speculation took different forms across countries, but also appears to be a common denominator in the later stage of the property boom.

The user cost model as a way to formalize the role of interest rates, the mortgage market, and other fundamental factors in United States housing markets, building on earlier work by Himmelberg et al. (2005) and Mayer and Sinai (2007). Regressions show that a one percent change in the user cost results in a 0.62 to 0.85 percent change in house prices. This elasticity suggests that changes in interest rates have played a major role in the recent United States housing boom (and bust). But we also note that there is still excess volatility of the house price-rent ratio that is due to predominantly national factors. Credit market factors, including the subprime expansion of credit, and behavioral models are candidates to explain this excess volatility.

Montiel (1995) studied Financial liberalization which entails a variety of measures such as liberalization of interest rates, establishing freedom of entry into and procedures for orderly exit from the banking industry, reducing reserves and liquidity requirements, eliminating or minimizing credit allocation directives, eliminating preferential credit at concessional interest rates, and removing controls in the capital account of the balance of payments despite the assumed benefits of financial liberalization.

 McKinnon (1973) and Shaw (1973) in their studies found out that financial sectors in most developing countries are characterized by fragility, volatile interest rates, high-risk investment and inefficiencies in the intermediation process. These threaten stability of the financial sector as the system experiences banking crises, misallocation of resources, high levels of non-performing loans and high costs of intermediation.

Boot and Thakor (2000) studied that when banks compete to gain clients, firms are able to borrow from multiple banks at lower costs. During the past two decades, and the banking sector in Portugal has experienced a high degree of liberalization. Most of the state-owned banks have become privatized. Credit granted to the private sector has

recorded a remarkable growth and interest rates decreased steadily Ribeiro (2007).These developments should have contributed to increased competition in the Portuguese banking system, thus allowing firms to borrow from multiple banks at a lower cost.

The deposit to income ratio Pietersz (2010): This is the minimum required dawn payment for a typical mortgage, expressed in months or years of income. It is especially important for first-time buyers without existing home equity. If the down payment becomes too high then those buyers may find themselves priced out of the market. For example, as of 2004 this ratio was equal to one year of income in the UK.

Another variant is what the National Association of Realtors calls the housing affordability index in its publications. (The NAR's methodology was criticized by some analysts as it does not account for inflation). Other analysts, however, consider the measure appropriate, because both the income and housing cost data is expressed in terms that include inflation and, all things being equal, the index implicitly includes inflation. In either case, the usefulness of this ratio in identifying a bubble is debatable. While down payments normally increase with house valuations, bank lending becomes increasingly lax during a bubble and mortgages are offered to borrowers who would not normally qualify for them.Omboi and Kigige (2011)

Mwega (2010) studied how the global financial crisis affected Kenya, in his study; the ratio of Non-performing loans (NPLs) to assets is an indicator of banks' lack of asset quality and financial soundness. In the case of the current financial turmoil, a high ratio may indicate that banks are not healthy, since they have significant exposure to the origins of the problem. In Kenya, the NPL/assets ratio decreased from a high of 23.27% in 2000 to a low of 4.02% in 2008, an indication that the banking system's asset quality had improved. This may be attributed to the requirements for bad loans provisions and increased core capital mandated by CBK. According to CBK, net NPLs as a share of total loans declined from 2.9% in March 2008 to 2.2% in November 2008. This was accompanied by increased provisions for bad loans in 2005 and 2006, with a decline thereafter in 2007 and 2008.However, there is some evidence that the ratio increased slightly in 2009. According to CBK's September 2009 Monthly Economic Review, the

ratio of net NPL to gross loans increased from 3.4% in August 2008 to 3.7% in August 2009. CBK has accused commercial banks of fuelling loans defaults by charging borrowers high interest rates Kang'aru (2009)

Bernauer and Koubi (2006) studied Bank Behaviour, Market Discipline, and Regulation and found out that better capitalized banks have indeed experienced lower borrowing costs. When analyzing regulation and public policy more generally political scientist have focused almost exclusively on government and interest group behaviour. They submit that particularly with respect to economic policy this top-down perspective should be complemented and by a bottom-up view that systematically accounts, from the micro-level upwards, for the behaviour of economic factors and markets and their implications for regulation and public policy. We examine the US banking sector and its regulation in the 1990s to gain insights on how studies of this nature could be constructed. We focus on the banking sector because it is characterized both by market competition and extensive government regulation. The banking sector thus provides us with a good opportunity to examine a crucial area of economic policy through the lens of bank behaviour and market processes, and to complement existing studies in political science that have adopted primarily a top-down perspective (e.g., Murphy 2004;Genschel and Plumper 1997; Lutz 2000; Simmons 1999).Since the late 1980s national authorities from the G-10 and some other countries have engaged in increasingly complex national and international regulatory reforms in the banking sector. The aim of regulatory activity, a large part of which concentrates on the capitalization of banks, notably capital-asset ratios (CAR), has been to mitigate bank solvency problems that could destabilize national and international financial systems. The motivation behind the proliferation of regulatory activity is found in the presumption that banks, if left alone, would select to remain undercapitalized relative to the level required for bank solvency. Why do banks select such high levels of capital that appear to render regulation redundant? It has been suggested that market discipline may be responsible for this puzzling behaviour. In particular, in the absence of explicit or implicit, catholic – that is, covering all types of bank liabilities –guarantees by the government, banks may have an incentive to satisfy

"implicit capital adequacy requirements" in order to lower their riskiness and hence create liabilities at more favourable terms.

Bouchellal (2010) using a unique data set from the French credit market, a sample of 277 French firms between the years of 2006 and 2010, studied the impact of the number of lending relationship variable has on the credit margin. He found the existence of a negative relationship between margins applied to credit being supplied to firms, and the level of competition between credit institutions. Relationship lending entails many benefits as well as some costs for the borrowing which usually affect the credit amount and loan covenants. To this end, he tested different models for this variable. The results suggest that multiple bank relationships constitute an effective solution for the companies in order to lower their financing costs and also to avoid hold-up problems. Hence real estate owners can easily access credit facilities.

According to Omengo (2012), High interest rates in Kenya are hurting real estate investment. Interest is a cost to the developer of real estate as it is to the end buyer. Since October 2011 the Central Bank of Kenya (CBK) has increased the Central Bank Rate (CBR) from 7% to 18% in an effort to tame runaway inflation and stabilise the weakening shilling. Consequently commercial banks have increased their lending rates from low figures of 11% to about 25%.While the intervention by the CBK brought almost immediate relief to the economy, the effects of high interest rates on real estate is yet to be felt. Real estate market is an imperfect market. Any change in real estate market is felt several months later. This can be explained by the process and time it takes to deliver real estate. High interest rates in Kenya mean that ongoing projects will cost more when finally delivered. This will be due to higher costs of material, labour and most importantly the cost of construction money. Halting or delaying work in progress would only escalate costs further. Developers will therefore want to pass the increased costs to buyers in the form of higher prices. Should they fail to do so, they will have to do with drastically reduced profits or suffer loses. New investors will shy away from real estate investment resulting in low investment. High interest rates also translate into expensive mortgages. Any mortgage calculator on the internet will show you that an increase from 11% to 25% on a 20 year mortgage plan translates into a 100% increase in the

monthly installment. If your budget was Kenya Shillings 75,000 per month, you should now budget with Kenya Shilling 150,000 per month. Since real estate is mostly bought on margin, many potential buyers will shy away from mortgages as it is currently happening. The Monetary Policy Committee of the CBK in February 2012 decided to maintain the CBR at 18%. This implies that commercial bank lending rates would remain high for the succeeding months. For existing customers, commercial banks have agreed to restructure their loans to ease their increased burden due to the high interest rates. This would be by lengthening the repayment periods and subsidizing the higher liability rather than increasing monthly repayments. Upholding the CBR up while economic indicators show recovery will just delay the much desired market equilibrium.

The subprime mortgage crisis was the initial cause of the 2008 financial crisis, which then led to the worst recession since the Great Depression. This primer tracks how the subprime crisis unfolded, flattening the real estate market, creating the 2007 banking crisis and finally leading to the global recession. According to Davis (2008), the percentage of new lower-quality subprime mortgages rose from the historical 8% or lower range to approximately 20% from 2004 to 2006, with much higher ratios in some parts of the U.S. A high percentage of these subprime mortgages, over 90% in 2006 for example, were adjustable-rate mortgages. These two changes were part of a broader trend of lowered lending standards and higher-risk mortgage products.According to Setzer (2007), Minority borrowers are the most likely to have mortgages with oppressive terms, and many minority borrowers are pushed into expensive, subprime loans even though their incomes and credit histories qualify them for better interest rates. In a study based on 2005 data, both African-Americans and Hispanics of all income levels were at least twice as likely to have high-cost loans as whites. In New York City, 44 percent of mortgages in middle-income, predominantly black neighbourhoods were subprime, compared to only 15 percent of the loans in economically comparable white neighbourhoods, according to a 2002 study conducted for Sen. Charles E. Schumer, D-N.Y. "In other words, a significant proportion of black residents in New York City are being unnecessarily channelled into more expensive financing," said the report.

Difficulties in accessing financial assistance, outdated regulations and high cost of infrastructure are some of the reasons for the high cost of mortgage finance in Kenya. This is according to a baseline questionnaire survey on mortgage which was intended to provide a snapshot of Kenya's mortgage finance market. The report, "Developing Kenya's Mortgage Market" examines in detail the primary mortgage finance market, housing supply and demand constraints, and the potential for secondary mortgage finance market. Stakeholders in the sector are now asking the government to put policies in place to attract more players in the sector as well as review bills that can see requirements eased to access finance. There has been a tremendous expansion in the mortgage market in Kenya in the past few years with a projected annual growth of 30-40%.According to government figures, the annual unmet housing need in urban areas is about 80,000 units and this is expected to rise to more than 200,000 units as urbanization gathers pace. Ndungu (2010) said there is need to come up with different structures of financing as only about 8% of urban households can afford mortgage.

2.4 General Review

Interest rates are also influenced by factors outside the control of both the borrower and lender and unrelated to the specifics of a particular loan. Here are some of the key influences that go into determining the interest rate that you'll pay. (The independent financial portal, financial web)

2.4.1   Economic conditions

Economic conditions have an important influence on overall interest rates. Rates tend to increase during periods of strong economic activity when the demand for credit is high. A vital and healthy economy causes businesses to borrow funds in order to expand their output. At the same time, high employment rates and wage increases which accompany economic expansion usually make consumers more optimistic, leading them to buy more goods and services on credit. This increased demand for credit results in higher prices paid, in the form of interest rates, for that credit.

On the other hand, a weak economy does little to stimulate demand for credit by businesses or consumers. Industries operating at less-than-capacity along with rising unemployment cause cautiousness and cutbacks in spending and borrowing. The light demand for credit during these periods tends to drive interest rates downward.

2.4.2 Inflation

The inflationary expectations of consumers and businesses can have a major impact on interest rates. Lenders who foresee rising prices for goods and services will charge higher interest rates in order to compensate for the likelihood that their loans will be repaid with devalued dollars. At the same time potential borrowers, who are also anticipating rising inflation rates, are more likely to accept higher-interest loans because they expect to be able to pay them back with devalued dollars. The anticipation of rising inflation also stimulates consumers and businesses to buy as soon as possible in order to beat the expected price increases, placing more of a demand on credit which, in turn, drives interest rates upward.

2.4.3 A loan's term, or maturity length

Generally affects the rate of interest that will be charged. Loans with longer maturities typically have higher interest rates. A thirty-year home mortgage loan is likely to have a higher interest rate than a fifteen-year loan on the same property for the same amount. And a five-year car loan will carry a higher rate than a three-year loan. In short, a longer repayment period places the lender at greater risk.

2.4.4 A borrower's collateral

A borrower's collateral can have a major impact on the interest rate charged by a lender. Collateral places the lender in a more secure financial position. In the event that the borrower doesn't repay the loan, the lender can force the sale of the collateral in order to recoup any losses incurred. This lessens the risk to the lender, which should result in a reduced interest rate.

2.5 Conclusion

From the empirical studies, we find that costs can be significantly reduced in banking relationships and competitions according to Bouchellal (2010) and Boot and Thakor (2000). Hence real estate owners can easily access credit facilities. Bernauer and Koubi (2006) also studied Bank Behaviour, Market Discipline, and Regulation and found out that better capitalized banks have indeed experienced lower borrowing costs. In the theories according to AmosWEB (2012), we find out the importance of interest rates as an aggregate demand determinant is critical to the study of macroeconomics, and especially business-cycle instability. At the top of the list of reasons for this importance is the frequent use of monetary policy by the Federal Reserve System, as the examples presented here suggest. A key to monetary policy is manipulation of interest rates for the expressed purpose of stimulating or curtailing aggregate demand. However, such monetary-policy manipulation is often implemented to counter interest rate changes that result for other reasons, such as the business cycle. Interest rates tend to rise during expansions and fall during contractions.

Return on investment is a measure of profitability of the investment. Return on investment is also a measure of the risk in the investment. Real estate is a low risk investment with modest return on investment. Higher returns are associated with riskier investments as investors tend to demand higher returns for assuming higher risk. Investment risks include risk of total or partial loss of the capital or income. Investors therefore prefer shorter periods of risk and seek higher returns. In a market economy, resources tend to flow to activities that provide the greatest returns for the risks the lender bears. Interest rates (adjusted for expected inflation and other risks) serve as market signals of these rates of return. Although returns will differ across industries, the economy also has a natural rate of interest that depends on factors such as the nation's saving and investment rates. When economic activity weakens, monetary policymakers can push the interest rate target (adjusted for inflation) temporarily below the economy's natural rate, which lowers the real cost of borrowing. To most economists, the primary benefit of low interest rates is their stimulative effect on economic activity. By reducing interest rates, the Central bank can help spur business spending on capital goods—which

also helps the economy's long-term performance—and can help spur household expenditures on homes or consumer durables like automobiles. For example, home sales are generally higher when mortgage rates are 5 percent than when they are 10 percent.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used to carry out the study. The chapter considered in detail the methods that were used to collect any primary or secondary data required in the study. In this chapter, the researcher discusses the research design, target population, data collection and sample. The researcher also discusses how this data was analyzed giving details of any models or statistical tools that were used in the analysis with reasons as to why these particular models or statistical tools were used.

3.2 Research Design

A research design is a program to guide the researcher in collecting, analyzing and interpreting observed facts Orotho (2003). Descriptive survey design was used in the research. Mugenda and Mugenda (2003) support this view by asserting that this type of research attempts to describe such things as possible behavior, attitudes, and characteristics.

3.3 Target Population

This is the entire group of people; events or things of interest that the researcher will investigate Borg *et al.* (2007). The target population was all 35 banks in Kenya offering mortgage financing according to Central Bank of Kenya survey (2010).

3.4 Sample and Sampling Design

Cluster sampling method was used in the collection of data. The sample was obtained from the target population of all 35 banks in Kenya offering mortgage financing. 18 banks that were running the mortgage product during the period of study 2007-2011 were selected. Central bank survey (2010)

3.5 Data Collection

Secondary data was used for the purpose of this study and this data was derived from mortgage client statements and reports of banks offering mortgage financing in Kenya.

The variables that were used were the real interest rate in relation to the mortgage rate, property annuity values and mortgage rates.

The "real interest rate" is the rate of interest an investor expects to receive after allowing for inflation. It can be described more formally by the Fisher equation, which states that the real interest rate is approximately the nominal interest rate minus the inflation rate. If, for example, an investor were able to lock in a 5% interest rate for the coming year and anticipated a 2% rise in prices, he would expect to earn a real interest rate of 3%. This is not a single number, as different investors have different expectations of future inflation. Since the inflation rate over the course of a loan is not known initially, volatility in inflation represents a risk to both the lender and the borrower.

3.6 Data Analysis

Data analysis was carried out using the user cost model. Converting a part of investment of a durable (such as a house) into flow of service is done by taking into consideration long term financial (opportunity) cost and the use of the capital (depreciation). The method used is user cost and it combines measure of use of capital and the use of the durable itself, calculated for the duration of year, month or some other time interval.

The base for the calculation is the real estate value of the house .The value of the house is price updated monthly by price index for all properties sold. The house price index is calculated based on the change in the present value of property prices as measured in the sale contracts. The total price information from all the sales contracts are used for the calculation of imputed rent. Owner occupied housing measured in this way covers imputed rent, minor repairs and other cost, such as tariffs for sewerage, garbage and water.

The value of the house is collected in the Household Expenditure Survey and is calculated monthly by the simple user cost method. The simple user cost is calculated in two parts. One is the calculation of weight by using a real interest rate to measure the long term financial cost and the use of the durable. The other part is the price adjustment of the user cost weight (expenditure) by a house price index. Technically it is done by calculating this cost as an annuity. An annuity is a sequence of equal payments made at equal intervals of time. Most real estate investments are leveraged through mortgages, which is a type of annuity payment over a long period of time. In the index calculation the property value is calculated as an annuity and includes both the real interest rate and depreciation. The annuity formula is of the general form:

$$P_H = A_{HV} * \left[\frac{(1 + r)^N - 1}{r * (1 + r)^N} \right]$$

where PH is the present value of the house, AHV, the annuity of the house value, where r is the real interest rate and N the life time of the durable (depreciation is converted to years). The annuity formula is derived from a geometric series and the interest is calculated over the lifetime of the durable and added to the durables value and then converted into equal payments (annuity). By using annuity both the interest rate and the depreciation is calculated from the same base and increases in the same way by the property index. In addition the rent amount is also calculated over the lifetime of the durable. Lower lifetime of the durable (higher depreciation) leads to lower influence of interest rate changes.

The annuity of the house value, AHV,which increases with increasing mortgage rates,r,was used to show how the price of the house,PH, is directly related to this effect.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter considers the results and findings from the data collection form survey. The findings of the study are presented according to the research variables. There were 18 data collection forms distributed to the sampled banks. The analysis of findings is according to the returned forms from the 18 banks.

4.2 Response Rate

Of the 18 forms sent to the sampled subjects, 13 were filled and returned which translated to 70% response rate. This high response rate was achieved since the targeted subjects were few and this enabled the researcher to follow up closely.

4.3 General Information

4.3.1 Mortgage Rates vs. Interest rates

From the data collected and illustrated below, we can see that mortgage loan rates have been tracking the real interest rates, only recently from 2010 have they spiked due to prevailing inflation and money supply in an effort of Central bank to mop up excess money from the economy. The central bank base lending rate factors inflation and therefore it is referred to as the real interest rate.
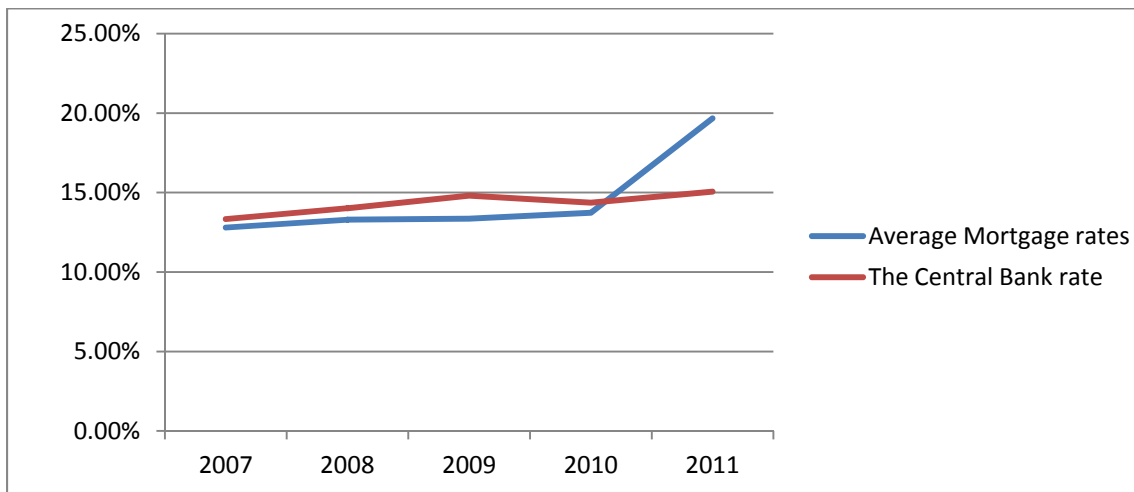
4.3.1 Mortgage Loan Characteristics

Large banks offer low mortgage rates because of the large capital base as compared to small and medium sized banks who have to maximize on the limited capital base.

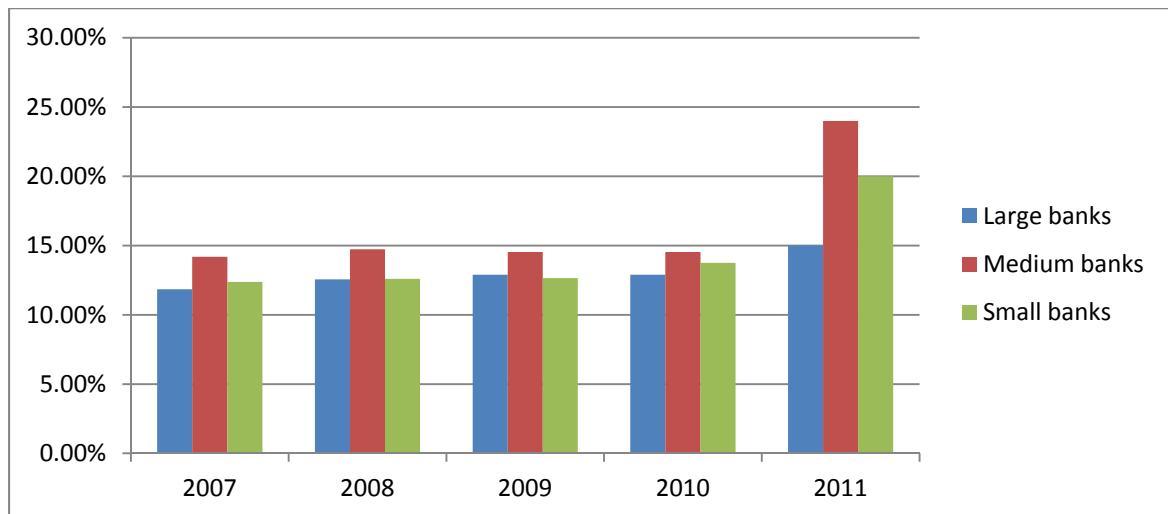| Year	2007	2008	2009	2010	2011
Large banks	11.84%	12.56%	12.90%	12.90%	15.00%
Medium banks	14.19%	14.73%	14.53%	14.53%	24.00%
Small banks	12.37%	12.59%	12.65%	13.75%	20.00%
AVERAGE	12.80%	13.29%	13.36%	13.73%	19.67%
CBK lending rate	13.33%	14.02%	14.80%	14.36%	15.06%

As illustrated above, mortgage rates have been adversely affected by rising interest rates in 2011.

There is a consistent preference for variable rates across all segments of banks (73% of all banks surveyed), followed by fixed and variable rates (18% of all banks) and a marginal preference for fixed rates only (9% of all banks).

Bank Segment	Fixed Rates Only	Variable Rates Only	Fixed & Variable Rates
% of Large Banks reporting	8%	75%	17%
% of Medium Banks reporting	20%	80%	N/A
% of Small Banks reporting	N/A	60%	40%
AVERAGE	**9%**	**73%**	**18%**

4.3.2 Mortgage Rates vs. House prices

A well illustrated relationship between interest rates and real estate investment is shown in the mortgage industry, as most people finance construction and property through mortgages and loans from banks.

Loan to Value ratio: On average, the loan to value is approximately *82% of the property value*, with larger institutions offering much higher loan to value ratios (85%) than medium (77%) and smaller banks (79%).

Bank Segment	Average Loan to Value	Minimum Loan to Value	Maximum Loan to Value
Large Banks	85%	60%	100%
Medium Banks	77%	60%	90%
Small Banks	79%	65%	90%
AVERAGE	82%		

From the data collected house prices have been increasing with rising mortgage rate as illustrated below.

A sample was drawn from a 10million mortgage loan running for 20 years.

For banks offering fixed and variable rates

Year	CBK base lending rate	Mortgage rate	Annuity Payment	Present value of the house
2007	13.33%	15.00%	131,000.00	16,399,448.46
2008	14.02%	15.00%	131,000.00	16,399,448.46
2009	14.80%	15.00%	131,000.00	16,399,448.46
2010	14.36%	15.00%	131,000.00	16,399,448.46
2011	17.92%	24.00%	201,000.00	16,523,232.35

For a bank offering variable rates

Year	CBK base lending rate	Mortgage rate	Annuity Payment	Present value of the house
2007	13.33%	16.33%	141,607.21	16,501,231.70
2008	14.02%	17.02%	146,832.17	16,509,873.36
2009	14.80%	17.80%	152,793.71	16,519,482.66
2010	14.36%	17.36%	149,423.88	16,514,087.09
2011	17.92%	20.92%	177,131.44	16,555,031.01

For banks offering fixed and variable rates

Property value rises with rising mortgage rate

Mortgage rate	Property value
15.00%	16,400,000.00
15.00%	16,400,000.00
15.00%	16,400,000.00
15.00%	16,400,000.00
24.00%	16,523,000.00
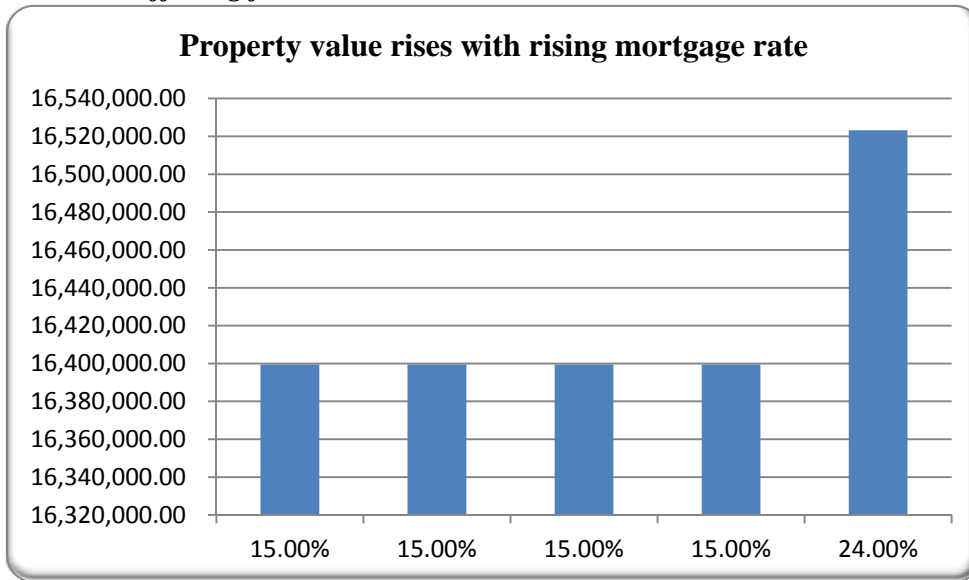
Most banks offer fixed mortgage rates to attract borrowers which in turn favors' mostly the real estate buyers as house prices remain constant as illustrated above

For a bank offering variable rates

Property value rises with rising mortgage rate

Mortgage rate	Property value
16.33%	16,501,000.00
17.02%	16,510,000.00
17.80%	16,519,000.00
17.36%	16,514,000.00
20.92%	16,555,000.00
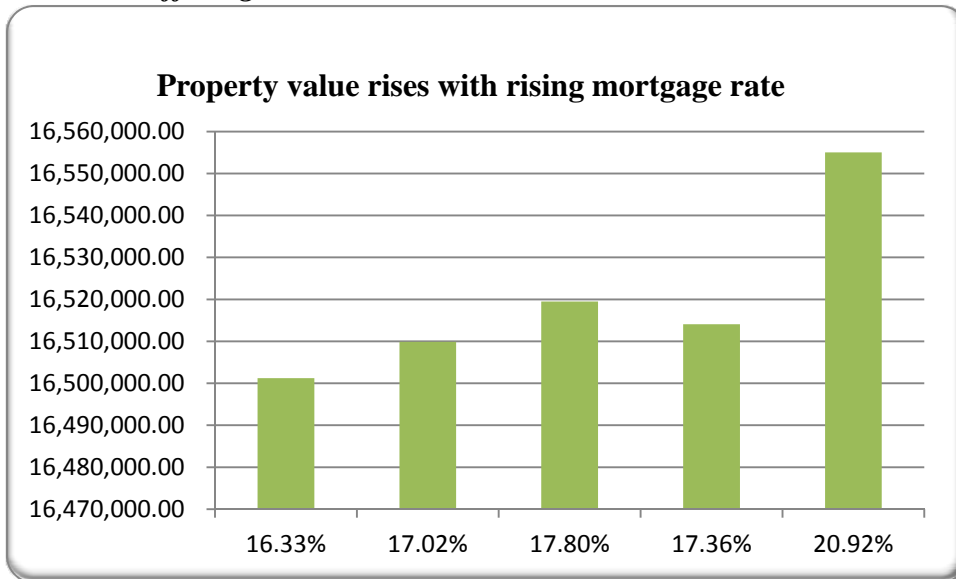
Banks adopt floating rates in extremely fluctuating markets as illustrated above

4.4 Summary and interpretation of findings

To further examine the relationship between user costs and house prices, we divide metropolitan property markets into three groups: Historically cyclical markets, metro areas with little real house price appreciation, and "recent boomers," markets that

historically have seen very little house price appreciation, but where house prices appeared to grow almost without bound in recent years. The analysis of housing data is mostly consistent with the global evidence. The data shows that for the first two groups of markets, much of the increase in house prices through 2007 to 2011 can be explained by fundamentals, particularly lower real long-term interest rates. However, excessive price appreciation as early as 2011 in the "recent boomers" is much harder to explain with a user cost model. This finding is consistent with arguments made by Glaeser et al. (2008) for these parts of the country where new construction is easy and prices almost surely must be driven primarily by construction costs.

Much academic and policy work has focused on the role of interest rates and other credit market conditions in this great boom-bust cycle.

- One common explanation for the boom is that easily available credit, perhaps caused by a "global savings glut," led to low real interest rates that boosted housing demand (Himmelberg et al. 2005, Mayer and Sinai 2009, Taylor 2009).
- Others have suggested that easy credit market terms, including low down payments and high mortgage approval rates, allowed many people to act at once and helped generate large, coordinated swings in housing markets (Khandani et al. 2009).

Those easy credit terms may have been a reflection of agency problems associated with mortgage securitisation (Keys *et al.,* 2009, 2010, Mian and Sufi, 2009 and 2010, Mian *et al.* 2008).

Interest rate sensitivity of real estate investments is an important consideration when lending to the real estate industry. From the borrower's perspective, interest rates affect the cost and availability of financing, the cost of construction, and the financial viability of a real estate project. Given the floating rate of most debt and the fixed rates on many leases, increasing interest rates are detrimental to the future repayment capacity of most real estate projects. Higher interest rates also reduce the market liquidity of real estate by making alternative investments more attractive to investors. Some banks are requiring their larger commercial real estate borrowers to hedge the interest rate risk in their projects by entering into interest rate swaps or collars. This observation compares with

previous findings of Bhattarai (2006) that changes in interest rates have profound impact on investments.

Rollover of leases is another risk to the borrower that is present in most commercial real estate projects. Real estate markets that feature five- and ten-year leases are particularly vulnerable to declining values. In extremely depressed real estate markets, leases have commonly been broken mid-contract, as tenants went out of business or simply threatened to move out unless their leases were renegotiated. Similarly, competing owners with large inventories of empty space have been known to buy-out existing leases in order to attract tenants to their properties. The value of even fully leased buildings can decline when leases must be rolled over or extended at lower, current market rates. As expiring leases cause project cash flows to decline, the developer may become unable to meet scheduled mortgage payments. This is similar to Realestatepros (2010) findings that setting the real estate list price for a piece of property involves evaluating the property as well as the various market conditions and financial factors.

Competition between banks in Kenya, has significantly contributed to stabilizing rates at a minimum, from the study findings, most banks offer similar range of mortgage rate closely tracking to the Central Bank Lending rate as required by the Central bank of Kenya. This safeguards the interests of both the borrower and the bank, but the borrower taking the highest benefit as annuity payments increase by a small margin of 0.25% to 0.75%.this observation compares with the studies of Bouchellal (2010) on the impact of lending relationship on credit margins.

The regression and correlation shows the independent variable X which is mortgage rate and the dependent variable Y which is the present value of the house, are strongly correlated at a value of 0.9, these results therefore show that an increase in mortgage rate results to an increase in the house value.

Mortgage (X)	Present value of the house (Y)	XY	X2
16.33%	16,501,231.7	2,694,926.16	2.6672333611111100%
17.02%	16,509,873.36	2,809,430.12	2.8956694444444500%
17.80%	16,519,482.66	2,941,156.23	3.1698835069444400%
17.36%	16,514,087.09	2,866,707.90	3.0134066736111100%
20.92%	16,555,031.01	3,463,312.49	4.3764640000000000%

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\sum X^2 - (\sum X)^2/n}\sqrt{\sum Y^2 - (\sum Y)^2/n}}$$

r = 0.999779941

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The objective of the study was to establish the relationship between interest rates and real estate investment in Kenya. This study was necessitated by the recent high fluctuations in interest rates that have affected the real estate industry more adversely than any other sector of the economy of Kenya.

The study analysis was carried out using the user cost model which showed how property prices rise, with rising mortgage rates and annuity payments

The study indicated that most banks had fixed mortgage rates between the period of 2007 to 2010 as a result of stable interest rates; house prices were also stable during this period. However due to spiking interest rates in 2011, most banks had to hedge risk by adopting floating rates. Central bank increased its base lending rate to 18% due to rising inflation and exchange rates. By mopping up excess money supply in the economy, it hoped to tame these two variables. However mortgage rates on the other hand rose to an all time high of 30%, extremely hurting real estate investor pockets, as annuity payments increased by 60% .Increase in annuity payment as a result of rising mortgage rates led to increase in real estate prices and rental rates.

Most banks offer up to 82% financing of real estate, these means that they are prone to Liquidity risk, which is the risk to earnings or capital arising from a bank's inability to meet its obligations when they come due to incurring unacceptable losses. Liquidity risk includes the inability to manage unplanned decreases or changes in funding sources. Liquidity risk also arises from the bank's failure to recognize or address changes in market conditions that affect the ability to liquidate assets quickly and with minimal loss in value. Also they are prone to interest rate risk, arising from differences between the timing of rate changes and the timing of cash flows (repricing risk); from changing rate relationships among different yield curves affecting bank activities (basis risk); from changing rate relationships across the spectrum of maturities (yield curve risk); and from

interest-related options embedded in bank products (options risk). Also they get affected by transactional risk which is the risk to earnings on capital arising from problems with service or product delivery. This risk is a function of internal controls, information systems, employee integrity, and operating processes.

5.2 Conclusions

From the study findings, the study can make the following conclusions. With inflation being high, interest rates rising and technological advancement demanding newer technology every day, banks are forced to respond to these changes which jeopardize investor confidence, as they try to hedge against credit risk.

Real estate investments will continue to be pricy unless the government comes in from time to time to control interest rates and factors that contribute to rising interest rates such as inflation, mainly fuelled by consumption goods which are normally heavily taxed and with the recent tax increases by the treasury, the rate are likely to stabilize at an all time high for a while.

High Interest rates are likely to depress the real estate industry/market as real estate investments are highly leveraged by variable mortgage rates, this variability needs to be regulated.

Commercial real estate developers must consider and plan for the risks associated with changes in their regulatory environment. Changes in zoning regulations, tax laws, and environmental regulations are examples of local and federal regulations that have had a significant effect on property values and the economic feasibility of existing and proposed real estate projects.

Annuity payments should be reduced with increasing mortgage rates in the interest of keeping borrowers attracted and in the interest of the viability of real estate investments both to the investor and to the bank. Housing and infrastructure have been two key areas in the Kenyan economy that require constant evaluation as demand increases with every passing year and every passing population census.

5.3 Policy recommendations

Government should take a more active role in the control of interest rates looking at more so the interests of the common citizen.

On borrower's perspective, Central Bank of Kenya regulation requires national banks to adopt written real estate lending policies that are consistent with safe and sound banking practices and appropriate to the size of the bank and the nature and scope of its operations. The bank's board of directors must review and approve the real estate lending policy at least annually.

Policies or procedures should be in place to protect the bank from liability for any environmental hazards associated with real estate that it holds as collateral. Asbestos in commercial buildings, contaminated soil and underground water supplies, or use of the property to produce or store toxic materials are only a few examples of environmental risk that may subject a bank to potential liability. Ideally, a bank should attempt to identify environmental risks before funding a loan or offering any type of commitment to lend. If the bank discovers that it has already accepted contaminated property as collateral, however, it should monitor the situation for any adverse effects on credit risk. It should also take steps to minimize any potential liability to the bank.

Banks engaged in construction lending need effective systems for monitoring the progress of construction and controlling the disbursement of loan proceeds. Ineffective systems can introduce significant operational risks.

As is true of all lending activities, a bank's primary concern should be that its real estate loans are made with a reasonable probability that the borrower will have sufficient cash flow to meet the repayment terms. However, the value of the collateral is a significant factor affecting the risk in real estate lending, so it also is essential for the bank to have adequate appraisal and evaluation programs. Appraisals are professional judgments of the market value of real property. Professional appraisers use three approaches to estimate the market value of property _ the cost approach, the market data or direct sales approach, and the income approach. This will also assist in lowering annuity payments in high interest environments, hence lowering house prices

5.4 Limitations of the Study

It was difficult getting the raw data especially on annuity payments as most banks have archived 2007-2010 client data. Therefore retrieval was lengthy and consumed a lot of time.

Most banks are afraid to relay the information, in the fear of being victimized both by the client and the supervisory body Central Bank.

Banks avoid relaying sensitive information to avoid losing their competitive edge to scrupulous competitors and individuals who are simply out to tarnish its name leading to a low response rate

5.5 Suggestions for Further Research

The study was to establish the relationship between interest rates and real estate investment. It did not take into account the demand and supply considerations which affect the two factors in this study that interrelate. It also did not look at extensively the government's role in real estate financing and interest rate regulations and control. These are areas that require extensive research.

Questionnaire and interviews could also be used to get first hand information from real estate financiers who are at the heart of the business; it is the researcher's view that the people on the ground contain the power to make the market better.

Rise in interest rates comes about due various factors such as inflation, increase in money supply in the economy, scrupulous individuals who are out to make a quick buck out of borrowers. These are areas of further research in a bid to control interest rates. Inflation needs to be researched on how it can be controlled and stabilized.

The property market index needs to be researched on and how it can significantly assist real estate developers and also to keep the property prices at a minimum.

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APPENDIX I
Data collection form

		Real interest rate	Mortgage rate	Annuity Payment
2007	January			
	February			
	March			
	April			
	May			
	June			
	July			
	August			
	September			
	October			
	November			
	December			
	AVERAGE			
2008	January			
	February			
	March			
	April			
	May			
	June			
	July			
	August			
	September			
	October			
	November			
	December			
	AVERAGE			
2009	January			
	February			
	March			
	April			
	May			
	June			
	July			
	August			
	September			
	October			

	November			
	December			
	AVERAGE			
2010	January			
	February			
	March			
	April			
	May			
	June			
	July			
	August			
	September			
	October			
	November			
	December			
	AVERAGE			
2011	January			
	February			
	March			
	April			
	May			
	June			
	July			
	August			
	September			
	October			
	November			
	December			
	AVERAGE			

APPENDIX II
Banks offering Mortgage Finance in Kenya

1. Kenya Commercial bank
2. Housing Finance Company of Kenya
3. CFC Stanbic
4. Standard Chartered Bank
5. Barclays Bank
6. Commercial Bank of Africa
7. I&M Bank
8. Bank of India
9. Prime Bank
10. Imperial Bank
11. Bank of Africa
12. Bank of Baroda
13. Family Bank
14. Victoria Commercial Bank
15. Chase Bank
16. African Banking Corp
17. Giro Bank
18. EcoBank