MOI UNIVERSITY

SCHOOL OF BUSINESS AND ECONOMICS

BBM 411/ECF 415: REAL ESTATE FINANCE

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Course Outline

Purpose of the Course

The purpose of the course is to introduce students to the area of Real Estate Finance students are expected to have a firm grasp of principles of finance, business finance, corporate finance and basic economics courses.

Course Objectives

1. Present an overview of real estate finance
2. Explain the different types of mortgages available in financing real estate
3. Elaborate the underwriting principles and procedures
4. outline on the appraisal of income producing real estate
5. Describe the alternative sources of real estate finance
6. Discuss the different methods of assessing real estate properties and their appraisal

Expected Learning Outcomes

By the end of the course, learners should be able to:

1. Explain the general aspects of real estate ranging from the characteristics of real estate, rights of owners, mortgages and implications of mortgage default.
2. Explain the different types of mortgages available in financing real estate and determine the different mortgage repayment regimes
3. Discuss the underwriting principles and procedures
4. Demonstrate ability to appraise income producing real estate
5. Describe the alternative sources of real estate finance
6. Show ability to assess performance of real estate properties and advice on possible portfolio considerations

COURSE CONTENT

Week 1

Introduction to Real Estate;

- Property Rights
- Estates and Mortgages,

Week 2

- Mortgage Default
- Foreclosure, and Bankruptcy,

Week 3

Financing Residential Properties, I

- Mortgage loan foundations (Time value of money)
- The Interest Factor in Financing,
- Fixed Interest Rate Mortgage Loans,

Week 4

Financing Residential Properties II

- Adjustable Rate and Variable Payment Mortgages,

Week 5

Underwriting and Financing residential properties.

Week 6

CAT 1

Week 7

Income producing properties

- Valuation of Income Properties
- Taxation of Income Producing Real Estate,

Week 8

Financing and Investing in Income-Producing Properties.

- Risk Analysis
- Financial Leverage and Debt Structure,
- Financing Real Estate Development,

Week 9

Alternative real estate financing and investment vehicles

- Sources of Mortgage and Equity Financing for Real Estate
- The Secondary Mortgage Market and Mortgage Related Securities,
- Real Estate Investment Trusts (REITs).

Week 10

- Performance of real estate investment

Week 11

- Measurement of real estate performance
- Portfolio Considerations

Week 12

CAT 2

Learning and Teaching Methodologies:
Lectures, Tutorials, Group Discussions and Presentations
Assessment:

Type	**Weighting**
Continuous Assessment Tests	30 %
Examination	70 %
Total	**100 %**

Course Text
Brueggeman & Fisher (2011). Real Estate Finance & Investment (14th Ed), McGraw Hill-Irwin
Corgel, Smith and Ling (1998). Real estate perspectives; An Introduction to Real Estate
Lusht (1997). Real Estate Valuation: Principles and Application.
Clauroties and Sirmans (2010). Real Estate Finance: Theory and Practice.

1.0 INTRODUCTION TO REAL ESTATE

NATURE AND MEANING OF REAL ESTATE

Real estate investment refers to the acquisition, ownership, management, rental, or sale of real estate for profit. This type of investment can be a great way to make a significant return on investment (ROI) while providing a tangible asset that can be used for a variety of purposes.

Often, real estate investment is divided into two categories: residential and commercial. Residential real estate includes single-family homes, multi-family homes, townhouses, and condos. In contrast, commercial real estate includes office buildings, shopping centers, hotels, and other properties used for business purposes.

One of the primary reasons people choose to invest in real estate is the potential for significant returns on investment. Real estate is often seen as a sound investment because it provides a tangible asset that can be used for a variety of purposes. Moreover, the value of real estate typically appreciates over time which allows investors to realize considerable capital gains.

However, real estate investing also comes with risks such as market fluctuations, slow sales, and changes in interest rates. To become a successful real estate investor, one must understand the key principles of real estate investment and have a solid understanding of the market.

Below are some of the key factors one should consider when venturing into real estate investment:

1**. Market Analysis**: Before deciding to invest in real estate, it is essential to identify the current state of the market. This includes factors like supply and demand, occupancy rates, rental rates, and inventory levels. Understanding the state of the market will enable you to determine the best approach to take and have realistic expectations.

2**. Financing**: Real estate investment requires considerable financial commitment, and an investor should identify how they intend to finance their investment. One can choose to finance using loans, personal savings, crowdfunding platforms or partnerships. Each option has its pros and cons, and an individual should select the best option depending on their financial situation and goals.

3. Location: When investing in real estate, the location of the property is often a significant determinant of its success. Investors should identify locations that are high potential for growth, have good access to social amenities, and possess good prospects for appreciation.

4**. Property Management:** Managing property can be challenging and costly. It is, therefore, necessary to dedicate enough resources while taking into consideration expenses like maintenance and repairs, taxes and advertising costs. Hiring a professional property management firm can help save time and reduce stress thus enhancing the chances of success.

5**. Exit Strategies:** Real estate investments ought to have a well-thought-out exit plan in case one wants to dispose of the investment. Various options include selling to other investors, listing on a broker, or hiring an agency to manage the sale of the property on your behalf.

6. Legal Matters: Real estate transactions can be complicated, and an investor ought to take the necessary legal precautions and obtain an attorney who specializes in real estate law to mitigate potential legal risks.

The following are the most common real estate methods:

1. Rental Properties: This involves buying a property and renting it out to tenants in exchange for rent income. Investing in rental properties can be a long-term strategy with stead y cash flow. To achieve this, the investor must make sure that the property is attractive to renters and located in an area in high demand.

2. House Flipping: House flipping is the process of buying a fixer-upper at a lower price and then doing necessary renovations, fixing and modernizing before selling it for a profit. This type of real estate investment enables an individual to make a quick profit if they can sell the house quickly.

3. Real Estate Investment Trusts (REITs): Real Estate Investment Trusts are companies that own, develop, and operate income-producing properties like shopping centers, hotels, and other commercial real estate. Investors purchase shares in the REIT, and the returns come from rental income and the appreciation of the property over time.

4. Real Estate Notes: Real Estate notes refer to a mortgage or other loan secured by a piece of real estate. An individual can acquire these notes from banks or other financial institutions and collect interest payments on a monthly or quarterly basis. The risk here is that if the borrower defaults on payments, the investor can foreclose on the property and own it.

5. Buy-and-Hold: This involves buying property with the goal of holding onto it for an extended period. The aim is usually to realize long-term capital appreciation and cash flow from rental income.

The Advantages of Real Estate Investment

1. **Tangible Asset**: Real estate investment provides an individual with a physical and tangible asset that appreciates over time and possesses potential for capital gains.

2. **Steady Income**: Rental properties provide a steady income through rent payments like residential homes, commercial buildings, and retail spaces.

3. Tax Benefits: Tax reductions are available for real estate investments. Tax deductibles include repairs, maintenance, and other expenses associated with real estate investment. Investors can also avoid tax liability through depreciation reduction of property values over time.

4**. Diversification:** Real estate investment serves as a diversification tool for those looking to spread their portfolio risk. Investing in real estate provides a steadier and more reliable source of future income in comparison to stocks.

Disadvantages of Real Estate Investment

1. High Initial Cost: Real estate investing requires considerable financial resources to purchase a property, leading to high costs depending on the location.

2. Management and Maintenance Costs: Another disadvantage is the cost of maintaining a property, especially when vacancies occur. Property management requires regular inspection, repairs, and maintenance.

3. Limited Liquidity: Real estate investments are less liquid than other investments such as stocks and securities.

4. Market Fluctuations: As with any market-based investment, there is always the risk of market fluctuations. Real estate is not immune to these shocks and price increases or decreases

SCOPE OF THE REAL ESTATE BUSINESS

The real estate business is extensive in scope and is a complex industry. Usually, when people think of the real estate business, they think only of residential brokerage. This is just one of several specializations within the real estate business, however. In fact, within the field of brokerage, there are several specializations, including farm and land brokerage, residential property brokerage, and commercial and investment property brokerage. In addition to brokerage, other specializations in real estate include property management, appraising,

financing, construction, property development, real estate education, and government service. Real estate transactions can be traced to early written records from biblical times, but those transactions were between the seller and buyer directly, without the participation of a real estate broker. The business of real estate brokerage is a product of the twentieth-century

Real estate finance and investment form the backbone of property transactions and development. This unit covers key concepts like the time value of money, net operating income, and capitalization rates. It also explores market sectors, investment fundamentals, and various valuation methods used in the industry. Financing options, risk assessment, and legal considerations are crucial aspects of real estate deals. The unit delves into different loan types, risk management strategies, and regulatory factors that impact property transactions. Real-world applications and case studies bring these concepts to life, showing how they're used in practice

Real Estate Market Overview

a) Real estate market is influenced by various factors such as economic conditions, demographics, interest rates, and government policies
b) Primary market sectors include residential, commercial, industrial, and land
c) The residential sector consists of single-family homes, multi-family properties, and condominiums
d) Commercial sector includes office buildings, retail spaces, hotels, and healthcare facilities
e) Industrial sector comprises warehouses, distribution centers, and manufacturing plants
f) Land sector involves undeveloped land, agricultural land, and land zoned for future development
g) Real estate market cycles are characterized by four distinct phases: recovery, expansion,hypersupplyy, and recession
h) Local market conditions can vary significantly from national trends due to factors such as population growth, employment opportunities, and local regulations.

Investment Fundamentals

1. Real estate investments offer potential for capital appreciation, cash flow, and tax benefits
2. Investors can participate in real estate through direct ownership, partnerships, or investment vehicles such as real estate investment trusts (REITs)
3. Cash flow refers to the net income generated by a property after accounting for all operating expenses and debt service
4. Appreciation is the increase in a property's value over time due to market conditions, improvements, or other factors
5. Leverage involves using borrowed funds to finance a real estate investment, amplifying potential returns and risks
6. Portfolio diversification can be achieved by investing in different property types, geographic locations, and investment strategies

Characteristics of Real Estate

1. Real estate investments can occur in four basic forms: private equity (direct ownership), publicly traded equity (indirect ownership claim), private debt (direct mortgage lending), and publicly traded debt (securitized mortgages).
2. Many motivations exist for investing in real estate income property. The key factors are current income, price appreciation, inflation hedge, diversification, and tax benefits.
3. Adding equity real estate investments to a traditional portfolio will potentially have diversification benefits because of the less-than-perfect correlation of equity real estate returns with returns to stocks and bonds.
4. If the income stream can be adjusted for inflation and real estate prices increase with inflation, then equity real estate investments may provide an inflation hedge.
5. Debt investors in real estate expect to receive their return from promised cash flows and typically do not participate in any appreciation in value of the underlying real estate. Thus, debt investments in real estate are similar to other fixed-income investments, such as bonds.
6. Regardless of the form of real estate investment, the value of the underlying real estate property can affect the performance of the investment with location being a critical factor in determining the value of a real estate property.
7. Real estate property has some unique characteristics compared with other investment asset classes. These characteristics include heterogeneity and fixed location, high unit value, management intensiveness, high transaction costs, depreciation, sensitivity to the credit market, illiquidity, and difficulty of value and price determination.
8. There are many different types of real estate properties in which to invest. The main commercial (income-producing) real estate property types are office, industrial and warehouse, retail, and multifamily. Other types of commercial properties typically are classified by their specific use.
9. Certain risk factors are common to commercial property, but each property type is likely to have a different susceptibility to these factors. The key risk factors that can affect commercial real estate include business conditions, lead time for new development, excess supply, cost and availability of capital, unexpected inflation, demographics, lack of liquidity, environmental issues, availability of information, management expertise, and leverage.
10. Location, lease structures, and economic factors—such as economic growth, population growth, employment growth, and consumer spending—affect the value of each property type

Real Estate Investment Objectives

Real estate investors come in many varieties, ranging from the individual who buys one rundown property and fixes it up for resale or rental to the individuals or corporations who buy large commercial complexes such as shopping centers and factories. The primary purpose of any investment is to produce income or profit, balancing the profit the investor desires against the risk he is willing to take. Real estate offers the opportunity to profit in three ways: appreciation,

positive cash flow, and tax advantage. Appreciation is the increase in market value when the investor holds the property. If an investor buys a property for sh100,000 and it increases 3% in value annually, and he holds the property for 10 years, the property will have appreciated to a value of sh134,391.46. A positive cash flow exists when the gross effective income produced by the property exceeds the total of operating expenses.

Tax advantages may result from appreciation or gains being taxed at a capital gain rate lower than the investor's marginal tax rate when the property is sold and from deductions of property taxes, insurance, and other expenses when the investor owns the property. Depreciation may provide an annual tax reduction, postponing the tax on the depreciated amount until the property is sold.

The term estate means "all that a person owns." Real estate is used to refer to things that are not movable such as land and improvements permanently attached to the land, and ownership rights associated with the real estate are referred to as real property. The term estates in real property is used to describe the extent to which rights and interests in real estate are owned. A system of modifiers has evolved, based on English property law that describes the nature or collection of rights and interests being described as a part of a transaction.

Though real estate is considered a ―local‖ business activity, the national residential and nonresidential/ commercial real estate markets are essential for the development of nationally integrated economic markets in general. A national economic market implies a free flow of capital, labor and resources within the borders of a nation-state, and the development of a national market for housing and other real estate resources is critical in facilitating national markets in goods, services and factors.

BUNDLE OF RIGHTS IN REAL ESTATE

Owning real estate carries with it a traditional "bundle of legal rights" transferred with the property from seller to buyer. These are the recognized rights of the holder of title to the property and include:

- **the right of possession** - the property is owned by whomever holds title;
- **the right of control** - within the laws, the owner controls the use of the property;
- **the right of exclusion** - others can be excluded from using or entering the property;
- **the right of enjoyment** - the owner can enjoy the use of the property in any legal manner; and
- **the right of disposition** - the title holder can sell, rent or transfer ownership or use of the property at will

Ownership of land is holding "title" to it. The evidence of that title is the deed. The seller executes a deed to transfer title to real property and the bundle of rights that go with it.

Assignment 1: Explain some of the limitations that can be placed on property rights. Hypothesize on the motives behind these limitations.

The major challenges faced by developers and how it impedes the process of creating affordable homes.

1. Shortage of finance

The perceived risks, high costs of doing business and longer term for returns create a situation where the affordable housing sector lands directly in competition with other types of real estate investment like commercial spaces, luxury segment and high-end housing which are perceived to reap greater and faster benefits on investment.

2. Land governance

Multiple contradictory land tenures and agreements, out-of-date land registries, lack of computerized land titling systems, inadequate incentives coupled with varied disagreements between the local and central policies make land policies for affordable housing, counterproductive. This reflects on the security of land being under constant threat, posing complications in property rights. Consequently, investors get discouraged, land assembly gets difficult and cost of land outstrips its value.

3. Infrastructure

Many of the African cities have seen a reverse trend in affordable housing development wherein the construction happens first followed by provision of infrastructure facilities like reliable electricity, clean water supply, sanitation services and efficient transport system. This puts a huge pressure on developers to pump in more money, incur higher lead times and face the risk of the long wait to dispose the units.

4. Building technology

The equipment, innovative techniques and alternate building materials all provide for expedited and highly cost-efficient, large-scale housing projects which then go on to justify the investments into the project. Unfortunately, most developers in the sector face resource and capacity limitations along with insufficient incentives, to capitalize on these aspects resulting in weak competition in terms of affordability of the housing units.

5. Inadequate housing policies

Due to inconsistencies in decentralization processes and the urban planning strategies, the local governance has a limited control on the implementation of these strategies resulting in unnecessary cost escalations usually accompanied with delays in project development. Also coupled with the fact that, multiple ministries are often involved in developing the housing

polices and urban plans at large tend to function with different objectives and incentives, further make the development and implementation of comprehensive housing policies difficult.

6. Low priority for housing in construction sector

With most African countries highly dependent of certain few, high-return sectors, to drive their economies, a drastic change in government's priorities towards affordable housing would be unlikely since this step might have a ripple effect on multiple aspects of a nation including the economic and social development. This mirrors in the fact that provision of serviced land for affordable housing has seen a decline in high-demand areas, close to public facilities and workplaces due to multiple reasons including technical capacities and perceived lower returns of investments.

These primary challenges encountered by affordable housing developers are highly complex and interdependent which makes them impossible to be solved by a single body. Thus, necessitating a platform which can bring together multiple stakeholders from varied areas of expertise in order to deliberate and seek solutions to such common problems.

1.1 INTEREST, VALUE AND EASEMENTS

- **Interest refers** to the broad legal term used to denote a property right. The holder enjoys some rights or degree of control or use and in turn may receive payments for the sale of such an interest.
- **Interest in real estate** refers to the right or claim on real property, its revenues or production or the degree of control or use by the holder who in turn may receive payments for the sale of such an interest. Interest are created by the owner and conveyed to another party usually in exchange for rent or other consideration.
  In real estate an interest is usually thought to be less important than an estate eg mortgage loan in which lender gets *secured interest* but not possession, use, etc.
- **Value** is viewed as the total price individuals are willing to pay for the flow of benefits associated with all of these rights. One needs not to own to have rights to some of the benefits of real estate e.g. In a lease, the lessee has right to exclusive use of the property for a period of time.
- **Easements** – refers to a *non-possessory interest* in land. It is the right to use the land owned or leased by someone else for some special purpose. An easement entails only a limited user privilege and not privileges associated with ownership.

1.2 Classification of Estates

- Estates in possession versus estates not in possession:
  - ❖ Distinguished on the basis of the nature of rights accompanying the ownership of such estates.
  - ❖ An estate in possession (a present estate in land) entitles the owners to immediate enjoyment of the rights to the estate.

- ❖ Estate not in possession (future estate in land) on the other hand does not convey the rights of the estate until sometime in future, if at all (represents a future promissory interest in property).

- Freehold versus leasehold estates:
  - ❖ Distinguished on the basis of the definiteness or certainty of their duration.
  - ❖ Freehold estate lasts for an indefinite period of time; there is no definitely ascertainable date on which the estate ends e.g. in Kenya lasts for 999 years.
  - ❖ Leasehold estate on the other hand expires on a definite date in Kenya lasts for 99 years.
  - ❖ Freehold estate connotes ownership of the property by the estate holder whereas leasehold estate implies only the rights to possess and use the property owned by another for a period of time.

Examples

- Freehold estates
  - ❖ Fee simple estate / fee simple absolute estate – is the freehold estate that represents the most complete form of ownership of real estate. The holder is free to divide up the fee into lesser estate and sell, lease, or borrow against them subject to the laws of the state. May also be controlled by the deed restrictions which are essentially private contractual agreements imposed by former owners to use or not to use property in certain way.
  - ❖ Life estate – is a freehold estate that lasts only as long as the life of the owners of the estate or the life of some other person. Upon the death of that person the property reverts back to the original grantor his or her heir or any other designated person.
- Future estates
  - ❖ Reversion – exist when the holder (grantor) of an estate in land conveys to another (grantee) a present estate in the property that has fewer ownership rights than the grantor's own estate and retains for the grantor or the grantor's heirs the right to take back at some time in the future, the full estate that the grantor enjoyed before the conveyance.

    It is therefore said that the grantor has a reversionary fee interest in the property held by the grantee. A reversionary interest can be sold or mortgaged.
  - ❖ Remainder – exist when the grantor of a present estate with fewer ownership rights than the grantor's own estate conveys to a third party the reversionary interest the grantor or the grantor's heirs would otherwise have in the property upon termination of the grantee's estate.

    A remainder is the future estate for the third person. A remainder is also a mortgageable interest in property.
- Leasehold estates
  - ❖ Estate for years – type of leasehold estate investors and lenders are most likely to encounter. It is created by lease that specifies an exact duration for the tenancy. The lease, as well as all contracts involving transactions in real estate is usually written, the rights and duties of the landlord and tenant and

other provisions related to the tenancy are normally stated in the lease agreement.

- ❖ Estate from year to year/ estate from period to period / periodic tenancy – type of leasehold estate which continue for successive periods until either party gives proper notice of its intent to terminate at the end of one or more subsequent periods.

A period normally corresponds to the rent-paying period. Such tenancy commonly runs from month to month.

1.3 Title Assurance

- Title – refers to an abstract term used to link an individual or entity who owns property. A person who has title is said to have all of the elements, including the documented records acts that prove ownership.
- An abstract of title – is a historical summary of the publicly recorded documents that affect a title. The quality of the title conveyed from seller to buyer depends upon the effect these documents have upon the seller's rightful possession of his or her property.
- Title assurance refers to the means by which buyers or real estate:
  1. Learn in advance whether their sellers have and can convey the quality of title they claim to possess and
  2. Receive compensation if the title, after transfer, turns out not to be as represented.
- Lenders are also concerned about title assurance because the quality of title affects the collateral value of the property in which they may have secured interest.
- Deeds – title is conveyed from one person (grantor) to another (grantee) by means of a written instrument called deed.

Methods of title assurance

- Warranty Deed:
  - ❖ General warranty deed – the grantor warrants that the title he or she conveys to the property is free and clear of all encumbrances other than those specifically listed in the deed. Common covenants include:
    1. Grantor has good title to the property
    2. Grantor has the right to convey the property
    3. To compensate the grantee for loss of property or eviction suffered from someone having superior claim against encumbrances other than those specifically stated in the deed.
  - ❖ Special warranty deed – makes the same warranties as a general deed except that it limits their application to defects and encumbrances that occurred only while the grantor held title to the property.
  - ❖ Quitclaim deed – offers the grantee least protection as it simply conveys to the grantee whatever rights, interests and title that the grantor may have in the property. No warranties are made about the rights and interest or of the quality of the grantor's title to the property.
- Abstract and Opinion Method:

- ❖ Title search – locating and examining all instruments in the public record to ascertain authenticity sometimes referred to ‘as is’ deed.
- ❖ Studying of relevant public records in order to arrive at an expert opinion of the character of the title.

- Title insurance Method:
  - ❖ Elimination of risk arising from unseen hazards in the public record has caused many investors and lenders to prefer this method of title assurance.
  - ❖ Title insurance is required for any mortgage to be traded in the secondary mortgage market.
  - ❖ Ensures that the title is good and marketable.
  - ❖ Additions of title insurance to the abstract and opinion method include:
    1. Definite contract liability to the premium payer.
    2. Reserves sufficient to meet insured losses.
    3. Supervision by an agency of the state in which the title insurance company operates.
    4. Protection to the policy holder against financial losses that may show up at any future time because of title defects of any kind disclosed or hidden.
  - ❖ Kinds of title insurance policies include:
    1. Owner’s policy – insures the interest of a new property owner.
    2. Lender’s policy – insures the interest of the mortgage

Recording Acts

- All states enact statutes known as recording acts.
- They in general provide publicly accessible system for assessing and establishing claims or interest in real estate as against all other parties.
- Provides a set of authoritative rules for resolving priority disputes among competing claimants.
- Documents are placed on the public record and maintained.
- Constructive notice means that recording acts deem a person to have whatever information is contained in the public records, which could be obtained by a reasonably diligent investigation of the records whether or not he or she actually has knowledge of the information so recorded.
- Public records however may not disclose mechanics lien, which give unpaid contractors, workers, and material suppliers the right to attach a lien on the real estate which they added their labor or material.

REAL ESTATE FINANCING

- Real estate finance is traditionally the process of borrowing or lending, most often involving a third party that is neither the buyer nor seller of the property in question.
- From the borrower's point of view a loan is a debt and liability, while from the lender's point of view a loan is an investment and an asset with the property serving as collateral for the loan.

Sources of Real Estate Finance

For some years now the real estate industry in Kenya has been growing in leaps and bounds. During this time some investors have made astronomical profits turning some into overnight millionaires. As a result of this most people have a great desire to enter into this industry that seems to have magic for turning people into millionaires.

Real estate industry has a myriad of challenges which need to be overcome before one can start making the millions. One of the biggest challenges that have to be overcome by most developers and investors in this industry is 'how to *Finance* their real estate projects'. This is a unique characteristic in the industry as even government bodies, big corporations, large and small companies and individuals are faced with this same problem 'lack of enough or sufficient resources to completely fund their development projects.

Due to the high rate of return in the real estate developments, a lot of financial institutions and individuals are always willing to be involved in the funding of some of these projects. It is important to note that most of the local banks have subsidiary companies that are specifically dealing with construction funding. There are several ways and places one can explore while planning to get funding for a real estate project;

- Personal saving
- Financial institutions
- Pre-sales/off-plan sales
- Joint Venture
- Contractor financed
- Offshore funding

- **Personal saving/Owner funding**

This applies where a developer has enough money to run the project through to completion. This is a very rare scenario and mostly happens to projects of smaller scale that do not require heavy capital outlay and also common among developers who been in the industry for a longer time. It is important for the developer to come up with a development budget for the project so as to be certain that he/she has enough capital to complete the project. Once he has come up with a budget it is also important to develop a cash flow which allocates the finances to the different activities and phases of the project. This method has no huge expenses in terms of cost of finances and is therefore very profitable.

- **Financial Institutions**

Banks for a very long time have been the most common sources of construction loans but in recent past several other financial institutions have entered the market. This has made it easier for developers to get finances for their developments.
Financial institutions offer real estate development finances in two forms;

i. **Construction loan**

With a construction loan, you are asking the bank to estimate the value of something that does not yet exist and then lend you money for it. For a construction loan to be granted, the real estate development projections have to be realistic and able to show that it is profitable. The developer also has to show how he will be able to repay pack the loan. The loan is supposed to be paid immediately the development is complete.

A construction loan is really a reimbursement process. The bank does not advance construction funds; it will only pay for construction items that are complete. Each month you must submit a draw request along with supporting documentation to prove that building is progressing. The bank reviews the documentation; the bank relies heavily on the team of consultants documents certifying a payment but can also do their independent confirmations.
Most banks and financial institutions do not offer full financing to a particular project. They require the developer to commit a certain percentage to the total cost. Most of them give 70% of total construction cost. The 70% they give is only available after you have fully exhausted the 30% a developer is supposed to contribute. Interest for the loan given is normally supposed to start immediately the loan is awarded but if one is not able to start paying immediately one can apply for a **moratorium**. Basically, a moratorium on loan repayments is a loan repayment *holiday*. You are not required to make loan repayments or pay dues/fees for non-payment for a required period. Usually for financial hardship members/clients and needs to be organized and approved with your loan supplier.

ii. **Construction Mortgage**

A loan borrowed to finance the construction of a real estate development and typically only interest is paid during the construction period. Once the construction is over, the loan amount becomes due and it becomes a normal mortgage. The money is advanced incrementally during construction, as construction progresses. The advantage of such plans is that you have to apply only once and you will have only one loan closing.

- **Pre-Sales/Off-Plan Sales**

This method of financing is common in real estate developments that are fast moving commonly referred to as ‘hot cake’. In this method the developer seeks to sell the property before actual construction starts on site. The developer normally gives incentives to early buyers who buy the property off-plans by giving a discount from the actual cost. The developer can say decide to sell

the property at 15% off the selling price. Through this way the developer gets money in advance which is used to finance the construction.

- **Joint Venture (Jv)**

A Joint Venture is a partnership in which people decide to pull resources together. In most cases one person has the land while the other person has money.

How does the JV work?

A Joint Venture works whereby a land owner does not have the requisite funding enabling him obtain financing from a bank. In most cases, banks require that the land owner fund approximately 30% of the total cost of the project including land and consultancy fees.

Where the cost of land is less than 30% of the total costs, banks require that the land owner top up the difference either using cash or construction input till foundation stage. This top up is what lacks to most land owners. Joint Venture partners come in to assist the land owner reach the required bank minimum of 30% contribution by the land owner.

In the joint venture agreement, a Special Purpose Vehicle (SPV) has to be formed. An SPV is a company owned jointly by the financier and the Land Owner. The land ownership is now transferred to the SPV.

- **Contractor Financed**

This is another form of Joint Venture but in this case the joint venture partner is the contractor who will be given the work of construction. The developer enters into an arrangement with the contractor such that the contractor agrees to do the works and receive payment at the end of the project. Just like a Joint Venture a Special Purpose Vehicle is created.

FACTORS AFFECTING REAL ESTATE IN KENYA

1. **Housing Demand**

   Despite challenges that began in late 2011 owing to a weakened shilling, the prospects for the real estate sector in the long-term appear promising. For investors who are eyeing the market now, it is always safer to conduct thorough due diligence on properties of interest so as to avoid fraudulent cases. Nevertheless, the huge demand for housing will continue in 2012, owing to the fact that there is still a huge housing deficit in this country. The mortgage market is set for tremendous growth over the next decade, both in Kenya and the region. The key factor is the rates of interest charged

2. **Government Incentives**

   So far, the incentives introduced have not been sufficient enough to make housing affordable to the lower income group where the demand is high and the supply is critical. As was the case in 2011, the government has plans to offer more incentives in 2012, to accelerate growth in the property market.

   Budgetary allocation will be enhanced as well as sourcing of funds from development partners to assist in providing cash needed to stimulate construction of affordable houses to meet growing demand.

   In 2010, the Ministry of Housing revised the incentives although this may not have been enough. Talks on how to provide more incentives in the sector have been held with Treasury and there's hope that this will be captured in 2012. Current incentives should be expanded to cover more areas. This is geared towards stimulating more investments as well as taming imbalances in the market.

3. **Interest rates**

   The interest rates are expected to reduce as pressure is put on the Central Bank and other banks, investors, developers, bank customers and other stakeholders. There is a lot of competition that banks are facing from SME financiers and money-lending is becoming a popular business outlet at lower interest rates than the mainstream banks have been offering. Co-operative Saccos are giving banks a run for their money and Chama Accounts are opening everywhere in the country. With this kind of healthy competition, interest rates cannot remain high much longer.

4. **Land regulations**

   There is plenty of lobbying by non-government bodies and the CIC is in the process of implementing the land regulations. We expect the changes to come gradually and even though it has taken more time to make the bills into Acts of Parliament for some of the land bills and hence the implementation of the same, we consider the timelines earlier set to have

been too short because they did not give ample time nor the necessary release of funds for the grass root awareness movement.

1.4 THE MORTGAGE INSTRUMENT

- The combination of Equity and Debt used to buy a property is known as the capital structure of the property. When debt involves real estate as collateral security for the loan it is referred to as a Mortgage. A mortgage loan is a contractual agreement between the mortgagor and the mortgagee. It is therefore important to have relationship documented.
- On the other hand, a mortgage is created in a transaction whereby one-party pledges real property to another party as security for an obligation owed to that other party. Elements essential to the existence of a mortgage are obligation to pay and pledge of property as security for that obligation.

A **mortgage** is a method of using property (real or personal) as security for the performance of an obligation, usually the payment of a debt. In most jurisdictions' mortgages are strongly associated with loans secured on real estate rather than other property (such as ships) and in some cases only land may be mortgaged. Arranging a mortgage is seen as the standard method by which individuals and businesses can purchase residential and commercial real estate without the need to pay the full value immediately. In many countries it is normal for home purchases to be funded by a mortgage. In countries where the demand for home ownership is highest, strong domestic markets have developed, notably in Spain, the United Kingdom, and the United States.

- Theories of legal effect on title:
  - Title theory – title and the right to possession technically pass from the mortgagor to the mortgagee when the mortgage is exercised.
  - Lien theory – the mortgage is considered by the courts to be essentially in the nature of a lien. The mortgage merely conveys a security interest in a specifically designated property in return for a loan.

Often a buyer wonders if he is buying property in a state which is considered a "title theory state" or a "lien theory" state. Why would you need to know which custom is practiced in your country? In your opinion which option secures the interest of the mortgagor?

When financing is involved in a real estate purchase, it is important to understand if you will be subject to the title or lien theory of mortgages. The way in which a state will interpret how mortgage law is followed will be determined by which type of theory is practiced in your state.

Each type of theory has special considerations on who will hold title and how foreclosure proceedings would take place if they were to become necessary. In title theory states, the borrower does not actually keep title to the property during the loan term. The seller

gives the buyer/borrower a deed to the property but when the borrower signs the mortgage for the loan the borrower gives the title back to the mortgage holder. The lender then holds title to the property, as security only, until all loan payments have been made. During that time the borrower has the right to possession of the property, and the lender delivers the deed back to the borrower only after the loan obligation has been satisfied.

In a lien theory state, the buyer holds the deed to the property during the mortgage term. The buyer promises to make all payments to the lender and the mortgage becomes a lien on the property, but title remains with the buyer. The lender's lien is removed once the payment of all loan payments have been completed. Foreclosure proceedings in a lien theory state may be more difficult for the lender than in a title theory state, due to the fact that the buyer is holding title to the land and not the lender.

There is another type of mortgage custom which is referred to as the Deed of Trust theory. Under a Deed of Trust, the seller gives title to the buyer, and the buyer then signs a Deed of Trust which makes the lender the beneficiary in the Deed of Trust. *A third-party trustee typically holds the title to the property in trust, with the power to foreclose on the buyer if there is a default. The buyer owns the property and has all rights of ownership and possession, subject only to the conditions in the deed of trust. When the loan has been paid off, the lender will give clear the title by way of recording a Deed of Reconveyance. The Deed of Reconveyance removes the lender's interest in the property.*

Some states have modified the title and lien theories, and these states are referred to as "intermediary theory" states. In these states, the title remains with the borrower, but the lender may take back title to the property if the borrower defaults on the loan.

Real Estate Financing: Notes versus Mortgage:

- A promissory note is a document which serves as evidence that debt exists between a borrower and a lender and usually contains the terms under which the loan must be repaid and the rights and responsibilities of both parties. Unless stated otherwise, the borrower is personally liable for payment of all amounts due under the terms of the note. (These loans are said to be made “with recourse” to the borrower.) While many loan provisions may be included, notes usually contain at least the following:
    - Amount borrowed
    - The rate of interest
    - Maturity date
    - Amount repayable, due dates and number of installments
    - Reference to the real estate serving as security for loan
    - Provisions if any for unscheduled early payments for full or partial prepayments of outstanding balances
    - Other clauses dealing with notices of default
    - The rights of the mortgagor and mortgagee upon default
    - Late payment fees
    - Prepayments fees and other clauses.

Relationship of Note to Mortgage

- Normally, the underlying obligation secured by a mortgage is evidenced by a separate promissory note. Notes provides evidence of the debt and generally makes the borrower (mortgagor) personally liable for the obligation.
- The mortgage is usually a separate document that pledges the designated property as security for the debt. Therefore, the lender (mortgagee) has two sources from which amounts borrowed can be repaid: (1) the borrower, who is personally liable, and (2) the property that serves as security for the note.
- In case of default, the lender/mortgagee may elect to disregard the mortgage and sue on the note. The judgment awarded the mortgagee as a result of a suit on the note may be attached to other property of the mortgagor which, when sold to satisfy the judgment lien, may enable the mortgagee to recover the amount of the claim more readily than if he or she foreclosed on the mortgage.
- Mortgages typically include clauses containing important covenants for both the mortgagor and mortgagee. These covenants are promises, duties, and responsibilities of the borrower, in addition to payments required under the terms of the note. These are frequently repeated in the promissory note, or the note may incorporate these covenants by reference to the mortgage.

- *Minimum mortgage requirements*
    1. Wording that appropriately express the intent of the parties to create a security interest in real property for the benefit of the mortgagee.
    2. Other items required by state law.

- *Subjects included in a mortgage instrument are:*
    1. Appropriate identification of mortgagor and mortgagee.
    2. Proper description of the liened property.
    3. Covenants (promise or binding assurance) of seizing (the state of owing the quantum of title being conveyed) and warranty.
    4. Provision for release of dower rights. Dower – interest in a husband real estate transferred by law to the widow after his death.
    5. Any other desired covenants and contractual agreement.

- Other aspects of mortgage:
    - Property covered by a mortgage – land, existing buildings easements, fixtures etc.
    - Mortgage agreement may include rights over; natural resources, rents, profits from the sale of the real estate.
    - After acquired clause – provides that property acquired subsequent to the execution of the mortgage that becomes part of the real estate is to be included in the security covered by the mortgage. They include additional improvements executed or fixtures that become part of the property at any time in the future for as long as the debt remains outstanding.

- Junior mortgage – the character of mortgage structures is easily defined in the case of transactions that relate to single residences. The first mortgage refers to the senior or prior mortgage; all other are given the class name of junior mortgage.
- Recording of mortgage – recording of mortgage is not essential to the validity of a mortgage as between the mortgagor and the mortgagee. It however gives others notice of the existence and effect of the mortgage. It protects its holder by giving priority over the subsequent acts of the mortgagor.

1.5 Other Financing Instruments

- Purchase-money mortgage:
  If the seller is willing to take back a mortgage as part or in full payment of the purchase price, the seller has what is referred to as a purchase-money mortgage.
  They are common where:
  - ❖ Third party mortgage financing is too expensive or unavailable.
  - ❖ The buyer does not qualify for long-term mortgage credit because of a low-down payment or difficulty meeting monthly payments.
  - ❖ The seller desires to take advantage of the installment method of reporting the gain from the sale.
  - ❖ The seller desires to artificially raise the price of the property by offering a lower than market interest rate on the mortgage thereby creating more capital gains and less interest or ordinary income.
- Package Mortgage
  - ❖ Both borrower and the lender sanction the financing of many items of personal property such as refrigerators, cooling and ventilating systems, automatic washers and dryers and garbage disposal units for homes as a part of the realty.
  - ❖ The added items are annexed to the security for the real estate mortgage.
  - ❖ This is followed by a declaration that such articles are and shall be deemed to be fixtures and are to be considered in all respects as part of the real estate which serves for the mortgage.

2.0 MORTGAGE DEFAULT, FORECLOSURE, AND BANKRUPTCY

2.1 Mortgage Default

Default can be defined as a failure to fulfill a contract, agreement, or duty, especially a financial obligation. Default in a mortgage occurs as result of breach of the contract which includes:

- Failure to meet an installment of the interest and principal payments.
- Failure to pay taxes or insurance premiums when due
- Failure to keep the security (Real Estate) in repair may also constitute default usually referred to as technical default.
- Conducting unsanctioned changes in the property that could endanger the value of the property

Default may also be seen in terms of the breach of the letter of the contract and then in the attitude of the mortgage. In the former case despite default the lender may decide to ignore or postpone taking action especially where the mortgagor is of good character. While in the latter case default may be accompanied by abandonment necessitating the lender to act so as to protect her interest against vandalism, neglect and waste.

2.2 Foreclosure

Foreclosure refers to the action or an instance of foreclosing on a loan (oxford dictionary). To foreclose is to take possession of a borrower's property as a result of mortgage default. Many lenders' in practice are usually not eager to foreclose especially where they are in discussion with the borrower in so far as the mortgage default is concerned. The common reasons for this include:

- The process is costly as it requires a range of expertise.
- Mortgagees prefer to collect the amount owed and thus likely to be lenient and patient.

In the event, however, that after leniency and patience on the part of the mortgagor subsequent failure may necessitate foreclosure proceedings.

The foreclosure processes

There are three types of foreclosures which all require public notices to be issued and all parties to be notified regarding the proceedings.

- ❖ Judicial Foreclosure – under this type of foreclosure the mortgagee possesses two types of remedies.
  - Lender may sue on the debt, obtain judgment, and execute the judgments against property of the mortgagor.
  - Lender may bring a foreclosure suit and obtain a decree of foreclosure and sale. Foreclosure and sale may be undertaken in two separate actions, though usually pursued simultaneously.
- ❖ Redemption – redemption is the process of cancelling or annulling a title conveyed by a foreclosure sale by paying the debt or fulfilling the other conditions in the mortgage. Redemption can be done by paying the full amount of the debt, interest, and costs due to the mortgage. Once foreclosure sale has been confirmed, the mortgagor can no longer

redeem the property unless where statutory redemption is provided for (the right to redeem property from default after foreclosure).

- ❖ Sale of Property – different jurisdictions will determine the advertisement of the sale, the place where it takes place and the method of sale.

2.2.1 Alternatives to Foreclosure

As mentioned earlier, because of the costs associated with foreclosure, many lenders prefer to seek alternative to actual foreclosure. Where both mortgagor and mortgagee believe that the causes of mortgage default are of a temporary nature, adjustments of the payments or other terms may be negotiated. Some of the adjustments may be to the benefit of the mortgagor while may benefit the mortgagee.

- ❖ Recasting of mortgages by mortgagee – in order to avoid a default a mortgage can be recast by changing the terms of the mortgage either temporarily or permanently. Mortgage terms that may be recast include interest rate, amortization period, or payment amounts. However, care must be taken to ensure that mortgagees are protected from intervening lienors.
- ❖ Extension of agreements may include longer amortization period on the mortgage balance or temporary grace period for payment of interest or principal. The following issues have to be considered before granting extension:
  - The condition of the security.
  - The existence of intervening liens
  - The surety status of any grantees who have assumed the mortgage. The consequences of a foreclosure are a sufficient inducement to obtain agreement to be parties to an extension.

Alternatives to extension agreement –

- Mortgagor may agree informally to a temporary extension without making changes in the formally recorded agreement between the parties.
- The mortgagee may temporarily waive monthly mortgage payments or forgive in whole or in part.

❖ Transfer of Mortgage to a New Owner –

- This occurs in the situation where in the event a mortgagor is unable to meet his obligations finds someone willing to purchase the property and thereby assume the mortgage liability or take the property subject to the existing mortgage.
- This is mainly appealing to a new purchaser especially where the value of the property is higher than the mortgage balance.
- The responsibility for the debt whichever the case remains with the seller who remains personally liable in the event that the buyer walks away from the deal. The buyer will only loose the equity investment.
- Put differently, the buyer in effect purchases an option: if property value goes up it becomes a good investment, if property value goes down he stops making payment and only loses the equity investment.

❖ Voluntary Conveyance –

- Here the mortgagor attempts to sell his equity to the mortgagee where he is unable to meet the mortgage obligations.
- This may be acceptable to the mortgagee as it saves time, trouble, and expenses associated with a foreclosure.
- Where the property value exceeds the mortgage balance, an agreed sum may be paid to the mortgagor otherwise the mortgagee may still accept the title even where value is lower (cost-benefit of foreclosure).
- The title is transferred with a warranty or quitclaim deed from mortgagor to mortgagee.
- Voluntary conveyance raise legal issues since the title conveyed may be subject to junior liens which may force the mortgagee to foreclose to be free from the liens of the junior claimants.

2.2.2 Other Foreclosure Considerations

❖ *In relation to property*

- Fixing price – while it is the case that through public auction the best price is realized in practice only the mortgagee or the mortgagee and a small number of bidders appear at a foreclosure sale. Lenders rarely bid in excess of their claim but would bid to the extent of their claim where it is less than or equal to the market value of the security less foreclosure, resale, and holding costs.
- Nature of title at foreclosure sale – courts make no representation concerning the nature of the title that a buyer will receive. Title defects that existed prior to the foreclosure sale will continue with the title as it passes to the purchaser.
- Parties to foreclosure suit – all parties who share the mortgagor's interest must be enjoined in the foreclosure suit by the holder of the senior mortgage. Otherwise, failure to do so may improve their position with the foreclosure of the senior lien.

❖ *Effect of foreclosure on junior lienors* -

- Any surplus remaining after satisfying the costs of foreclosure and the claim of the senior lienor is distributed according to the priority rights of junior claims.
- Lien of the junior mortgage is extinguished once a senior mortgage is properly foreclosed.

❖ *Deficiency judgment*

- Based on the argument that surplus on sum realized on foreclosure is payable to the mortgagor, it follows that any deficit becomes a continuing claim by the mortgagee.
- Such claims are referred to as deficiency judgment which may be secured by other property owned by the mortgagor otherwise such a claim is an unsecured claim.

❖ *Taxes in default*

- Property tax payment is an obligation and thus taxes constitute a prior lien against the security.
- Despite having the leeway to foreclose on unpaid taxes, tax authorities may not do so since mortgagees in order to protect their priority claim in practice will pay any delinquent taxes and add to their claim (carry high effective rates of interest).

❖ *Bankruptcy*

- Bankruptcy may be defined as a proceeding in which the court takes over the property of a debtor to satisfy the claims of creditors. The goal is to relieve the debtor of all liabilities, so that he or she may become financially solvent
- Lenders must be aware of the possibility that a borrower may file bankruptcy and must know how such a filing will change their positions.
- Bankruptcy affects the value of real estate as collateral.
- To this end lenders must be aware of the possibility that borrower may file bankruptcy and must know how such a filling will change their positions.
- The lender and the borrower must therefore understand their rights in a bankruptcy procedure so as to facilitate effective negotiation with a view to resolving their differences beforehand.

Mortgage Loan Foundations: Time Value of Money

Financing the purchase of real estate usually involves borrowing on a long- or short-term basis. Because large amounts are usually borrowed in relation to the prices paid for real estate, financing costs are usually significant in amount and weigh heavily in the decision to buy property. Individuals involved in real estate finance must understand how these costs are computed and how various provisions in loan agreements affect financing costs and mortgage payments. To understand these dynamics, an understanding of the mathematics of compound interest is essential or in general terms determination of the time value of money.

The time Value of Money is one of the most significant concepts in finance. The idea focuses on identifying the real value of **cash flows** expected in the future due to the business or individual investment decisions made from time to time.

Two most common methods of adjusting cash flows for the time value of money:

Compounding—the process of calculating **future values** of cash flows and
Discounting—the process of calculating **present values** of cash flows.

There are four main reasons that underpin the TVM theory:
Money has time value because of the following reasons:

1. **Risk and Uncertainty**
   Future is always uncertain and risky. Outflow of cash is in our control as payments to parties are made by us. There is no certainty for future cash inflows. Cash inflows are dependent on our Creditor, Bank etc. As an individual or firm is not certain about future cash receipts, it prefers receiving cash now.

2. **Inflation:**
   In an inflationary economy, the money received today, has more purchasing power than the money to be received in future. In other words, a rupee today represents a greater real purchasing power than a rupee a year after.

3. **Consumption:**
   Individuals generally prefer current consumption to future consumption.

4. **Investment opportunities:**

An investor can profitably employ a rupee received today, to give him a higher value to be received tomorrow or after a certain period of time. Thus, the fundamental principle behind the concept of time value of money is that, a sum of money received today, is worth more than if the same is received after a certain period of time. For example, if an individual is given an alternative either to receive sh.10,000 now or after one year, he will prefer sh 10,000 now. This is because, today, he may be in a position to purchase more goods with this money than what he is going to get for the same amount after one year.

Time Value of money examples

1. If a given sum of money is deposited in a savings account; it earns interest.
2. If it is used to start a business, it earns profit
3. If it is used to purchase a share in a business, it earns dividends.
4. If it is used to purchase an office building or apartment house, it earns rent.

Single Sum:

FUTURE VALUE: $FV = PV\ (1+i)^n$

Where PV = present value, or principal at the beginning of the year
i = the interest rate
FV = principal at the end of n years, or future value
n = number of years

Examples

1. You would like to buy a house that is currently on the market at sh 850,000, but you cannot afford it right now. However, you think that you would be able to buy it after 4 years. If the expected inflation rate as applied to the price of this house is 6% per year, what is its expected price after four years?
2. Jack has deposited sh 60,000 in a money market account with a variable interest rate. The account compounds the interest monthly. Jack expects the interest rate to remain at 8% annually for the first 3 months, at 9% annually for the next 3 months, and then back to 8% annually for the next 3 months. Find the total amount in this account after 9 months.
3. You decide to put sh 120,000 in a money market fund that pays interest at the annual rate of 8.4%, compounding it monthly. You plan to take the money out after one year and pay the income tax on the interest earned. You are in the 15% tax bracket. Find the total amount available to you after taxes.
4. Single payment, interest rate? You have borrowed sh 8,500 from your sister and you have promised to pay her sh 10,000 after 3 years. With annual compounding, find the implied rate of interest for this loan.
5. You want to be able to contribute sh 25,000 to your child's first year of college tuition and related expenses. You currently have sh 15,000 in a tuition savings account that is earning 6% interest every year. How long will it take for this account grow into the targeted amount of sh 25,000, assuming no additional deposits or withdrawals are made?
6. Jane now has a farm that is worth sh 200,000. If farm values inflate at an average rate of four percent over the next 15 years, what will the farm be worth at the end of the 15-year period?

Present Value: PV = $\frac{FV}{(1+i)^n}$ or $PV = FV\,(1+i)^{-n}$

1. Suppose you need sh10,000 in one year for the down payment on a new car. If you can earn 7% annually, how much do you need to invest today?
2. Suppose you had a relative deposited sh 100,00, 20 years ago. The money grew at an annual interest of 5.5% ever since. How much money do you have today?
3. **Present value, interest rate?** You expect to receive sh 100,000 as a bonus after 5 years on the job. You have calculated the present value of this bonus and the answer is sh 80,000. What discount rate did you use in your calculation?
4. John needs sh 4,200,000 in 5 years for the down payment on his new house that earns 8% annually, how much does he need to invest today?

ANNUITY

An annuity is a contract between you and an insurance company that requires the insurer to make payments to you, either immediately or in the future.

Future Value of an Annuity

- **Definition**: The total value of a series of periodic payments at a specific point in the future, including interest earned over time.
- **Use**: Helps calculate the future worth of regular savings or investments.

Present Value of an Annuity

- **Definition**: The current worth of a series of future periodic payments, discounted at a specific rate of interest.
- **Use**: Helps calculate how much money is needed today to achieve a series of future payments

Ordinary Annuity

- **Definition**: Payments are made at the **end of each period** (e.g., month, quarter, or year).
- **Example**: Loan repayments or bond coupon payments.

Annuity Due

- **Definition**: Payments are made at the **beginning of each period**.
- **Example**: Rent payments or lease agreements

Perpetuity

- **Definition**: An annuity with **no fixed end date**; payments continue indefinitely.
- **Example**: Dividends on preferred stock

Fixed Annuity

- **Definition**: Payments are of **fixed amounts** over the term of the annuity.
- **Example**: Pensions or savings plans with guaranteed returns.
- **Purpose**: Provides predictable income over time

Deferred Annuity

- **Definition**: Payments begin at a future date (after a deferral period).
- **Example**: Retirement savings plans where income starts after a certain age.
- **Purpose**: Allows funds to grow before withdrawals begin.

Features of annuity

1. Safe investment option

Annuity plans are low risk plans that are not market-linked. The amount you receive is guaranteed and is fixed at the time of the purchase of the plan

2. Financial security

Annuity plans provide you with an income for life. This helps you stay financially independent during your retirement

3. Flexibility

These plans offer you the flexibility to choose how you want to receive your income. You can choose to receive the income from the plan monthly, quarterly, half-yearly or yearly. Some annuity plans also offer you the flexibility to pay your premiums monthly, half-yearly, yearly or all at once as per your convenience

Benefits of Annuity plans

a) Lifetime source of income
b) Multiple options to choose from
c) Tax benefits

FUTURE VALUE:

$$F_n = P\left[\frac{(1+i)^n - 1}{i}\right] = P(\text{CVAF}_{n,\ i})$$

1. You have an investment account that has a 6% annual interest rate. At the end of each year, you invest an additional sh 20,000. You want to know how much you will have in your investment account over the next 5 years.

2. The final value of a 7-year annuity-due with a nominal annual interest rate of 9% and monthly payments of sh 10,000.
3. If at the end of each month, a saver deposited sh 12,000 into a savings account that paid 6% compounded monthly, how much would he have at the end of 10 years?
4. Joy who is planning to invest sh15,000 annually for the next 8 years at a 6% interest rate in order to save money that is adequate for his son's education. Calculate the money that Stefan will be able to save in case of each deposit.
5. Saving sh 5000 monthly at 5% interest for 10 years results in a future value reflecting both contributions and compounded interest.

PRESENT VALUE:

$$P = A\left[\frac{1-\frac{1}{(1+i)^n}}{i}\right] = \frac{(1+i)^n - 1}{i(1+i)^n}$$

$$= A\left[\frac{1}{i} - \frac{1}{i(1+i)^n}\right] = A(\text{PVAF}_{n,i})$$

A=Periodic payments
P = The future value of the annuity stream to be paid in the future
PMT = The amount of each annuity payment/ Periodic cashflow
r = The interest rate
n = The number of periods over which payments are to be made

PRESENT VALUE

1. What is the present value of a 5-year annuity with a nominal annual interest rate of 12% and monthly payments of sh10,500?
2. John won a lottery worth sh 2,000,000 and has opted for an annuity payment at the end of each year for the next 12 years as a payout option. Determine the amount that John will be paid as an annuity payment if the constant rate of interest in the market is 5%.
3. Assume you want to sell five years' worth of payments sh 9,500, and the factoring company applies a 10 percent discount rate. Find the PV.
4. You are receiving sh 10,000 annually for 5 years with a discount rate of 8% gives a present value indicating what this series of payments is worth today.

AMORTIZATION: Definition, Formula, Examples

Amortization could apply in two situations: while taking a loan or in a business where intangible assets are concerned.

In general, to amortize is to write off the initial cost of a component or asset over a certain span of time. It also implies paying off or reducing the initial price through regular payments.

Financially, amortization can be termed as a tax deduction for the progressive consumption of an asset's value, in particular an intangible asset. It is often used with depreciation synonymously, which theoretically refers to the same for physical assets.

Amortization refers to the reduction of a debt over time by paying the same amount each period, usually monthly.

In accounting, the amortization of intangible assets refers to distributing the cost of an intangible asset over time.

Amortization may refer the liquidation of an interest-bearing debt through a series of periodic payments over a certain period. In most cases, the payments over the period are of equal amounts. Paying in equal amounts is actually quite common when taking out a loan or a mortgage.

How to Calculate Amortization

A step-by-step guide to calculating amortization.

1. In the first month, multiply the total amount of the loan by the interest rate.
2. In the case of monthly installments, divide the result of step 1 by 12 to get the monthly interest amount.
3. Next is to subtract the interest from the monthly installment amount; the remaining amount goes as the principal.
4. For the second month, repeat the process; but start with the remaining principal amount from the first month’s calculation. Remember not to start with the original amount of the loan.
5. Continuing with this calculation, your principal will be zero by the end of the loan term.

Amortization is often used in real estate transactions because the purchase price of these assets is typically more than an average consumer can pay all at once. Thus, the buyer must take out a mortgage loan for a fixed amount (the purchase price of the real estate property), which is paid back in monthly installments for a pre-defined number of periods. While terms may vary, the two most common lengths of mortgages are 15-year (or 180 months) and 30-year (or 360 months). For the convenience of having smaller payments, 30-year mortgages usually have a higher interest rate than 15-year loans.

Example ONE

Suppose you plan to get a sh 9,000 loan from a furniture dealer at 18% annual interest with annual payments that you will pay off in over five years. What will your annual payments be on this loan?

9000 = PMT {[1-(1/(1.18)5] ÷ (.18)}

PMT = sh9,000 / {3.127) = **sh 2,878**

The Loan Amortization Schedule Year	**Amount Owed on Principal at the Beginning of the Year (1)**	**Annuity Payment (2)**	**Interest Portion of the Annuity (3) = (1) × 18%**	**Repayment of the Principal Portion of the Annuity (4) = (2) –(3)**	**Outstanding Loan Balance at Year end, After the Annuity Payment (5) =(1) – (4)**
1	**sh9,000**	**sh2,878**	**sh1,620.00**	**sh1,258.00**	**sh7,742.00**
2	**sh7,742**	**sh2,878**	**sh1,393.56**	**sh1,484.44**	**sh6,257.56**
3	**sh6257.56**	**sh2,878**	**sh1,126.36**	**sh1,751.64**	**sh4,505.92**
4	**sh4,505.92**	**sh2,878**	**sh811.07**	**sh2,066.93**	**sh2,438.98**
5	**sh2,438.98**	**sh2,878**	**sh439.02**	**sh2,438.98**	**sh0.00**

Example 2

You take a loan of sh 200,000 to be repaid over 5 years with yearly payments at an annual interest rate of 6% per annum. What is the yearly payment, and how does the loan amortize over time?

3.0 FIXED INTEREST RATE MORTGAGE LOANS: PRICING, PAYMENT PATTERNS AND EFFECTIVE BORROWING COSTS

Overview of Determinants of Interest Rates

- ❖ Changing economic conditions necessitates an understanding of sources of funds for lending and the nature of how risk, economic growth, and inflation affect the availability and cost of mortgage funds.
- ❖ The demand and supply of mortgage funds must be considered when considering the determinants of interest rates on mortgage loans.
- ❖ It is determined by what borrowers are willing to pay for the use of funds over a specified period of time and what lenders are willing to accept in the way of compensation for the use of such funds.
- ❖ On the demand side the demand for mortgage loans is a derived demand i.e. determined by the demand for housing e.g.
    - No of households desiring housing
    - Their income
    - Size
    - Age
    - Tastes
    - Preferences for other goods
    - Interest rate
- ❖ The supply side of the mortgage is established by what interest rates lenders are willing to accept when providing funds to borrowers.
- ❖ The supply is a function of
    - Cost of attracting funds from savers.
    - The cost of managing and originating loans.
    - Losses from loan defaults and foreclosures.
    - Potential losses due to unexpected changes in interest rates for fixed interest rates.
- ❖ The determinants of mortgage interest rates include:

- The real rate of interest – the minimum rate of interest that must be earned by savers to induce them to divert the use of resources from present consumption to future consumption **(time preference for consumption).**
  The real rate of interest is imbedded in all interest rates and investment returns as the basic or minimal return that productive uses of funds must earn to attract savings for investment **(production opportunities in the economy)**.
- Interest rates & inflation expectation: Investors are concerned on how inflation will affect investment returns. Lenders and investors must be convinced that interest rate commitment is sufficiently high to compensate for any expected loss in purchasing power over the investment period. Therefore, lenders and investors expectations of inflation rates are incorporated into interest rates. Nominal interest rate on any investment is partially determined by the real interest rate plus a premium for the expected rate of inflation.
- Interest rate and risk: Lenders and borrowers here are concerned whether interest rates and returns available on various loans and investments compensate adequately for risk.
  Risks affecting mortgage loans include

1. Default risk – risk that borrowers will default on obligation to repay interest and principal.
   It varies with the nature of the loan and the credit worthiness of individual borrowers.
   Therefore, it necessitates charging of a premium to offset possible loan losses.
   Default may arise from fall of borrower's income or fall of property value below the loan balance.
2. Interest rate risk – arise from the fact that we live in a world of uncertainty thus future supply of savings, demand for housing, and future levels of inflation cannot be known with certainty.
   Interest rate risk refers to the uncertainty of what interest should be charged when a loan is made.
   It affects all loans especially those made with fixed interest rates.
   A premium is therefore charged to compensate for the interest rate risk.
3. Liquidity and marketability
4. Prepayment risk
5. Legislative risks – changes in the regulatory environment eg tax status, rent control etc.

❖ Summary of factors important in mortgage pricing
- Interest charged on a particular mortgage loan depends on
  1. Real interest rate
  2. Expected inflation
  3. Interest rate risk
  4. Default risk
  5. Other risks
- These relationships can be summarized in general as follows:

$$i = r + p + f$$

Where i is the rate of interest on a mortgage loan.
r is the real rate of interest
p is the premium to compensate for default and other risks
f is the premium or expected inflation

- If lenders systematically underestimate any of the components, they will suffer real economic losses.
- The fact that mortgage loans under discussion are made at fixed interest rates for long periods of time makes pricing decisions by lenders complex.
- For one year maturity loan the interest would be

$$i_t = r_1 + p_1 + f_1$$

- For longer term maturities loans an assessment of what these components of interest rates would be each year that the loan is expected to be outstanding must be made.
- The lender may form expectations of what interest rates on a series of one-year loans would be over the maturity period.

$$(1+i_t)^n = (1+i_1)(1+i_2)(1+i_3).....(1+i_n)$$

3.2 Mortgage Payment Patterns

Development of Mortgage Payment Pattern

- In the early days when there was relatively stable economic environment characterized with very low rates of inflation, changes in mortgage instruments occurred gradually.
  However, volatility in interest rates and inflation since the 1970's led to changes in the design of mortgage loan instruments.

- Early mortgage lending patterns characteristics:
  - Lenders required substantial down payment from borrowers.
  - Lenders would limit maximum loan amounts to 50% of property value.
  - The term of the loans ranged from one year to a maximum of five years.
  - Repayments were generally interest only with the full loan balance due after five years.
  - Key facts in the early times were:
    1. Mortgage loans were considered to be very risky
    2. The borrower's ability to repay the loan was considered far important than the collateral value.
    3. Non renewal of loan after the term meant that the borrower could be required to repay the full loan balance.

3.2.1 The Constant Amortization Mortgage Loan (CAM)

- With economic prosperity lenders recognized the possibility that longer term loans could be made with increase in real incomes.
- Lenders were willing to make longer-run assessment of both the borrower and the collateral when making lending decision.
- Lenders devised loans referred to as self-amortizing loan made for longer term with monthly payments consisting of partial repayment of principal.
- Amortization means the process of loan repayment over time.
- The first effort to accomplish this was referred to as Constant Amortization Mortgage (CAM) loan.
- Determination of payment under CAM
  1. Computing a constant amount of each monthly payment to be applied to the principal.
  2. Computing interest on the monthly loan balance.
  3. Total monthly payment was determined by adding the constant amount of monthly amortization and interest on the outstanding loan balance.
- Illustration (BFS, page 105)

Loan made	-	sh 60,000
Loan term	-	30 Years
Interest	-	12% compounded monthly
Amortization	=	sh 60,000/360 Months
	=	sh 166.67 p.m

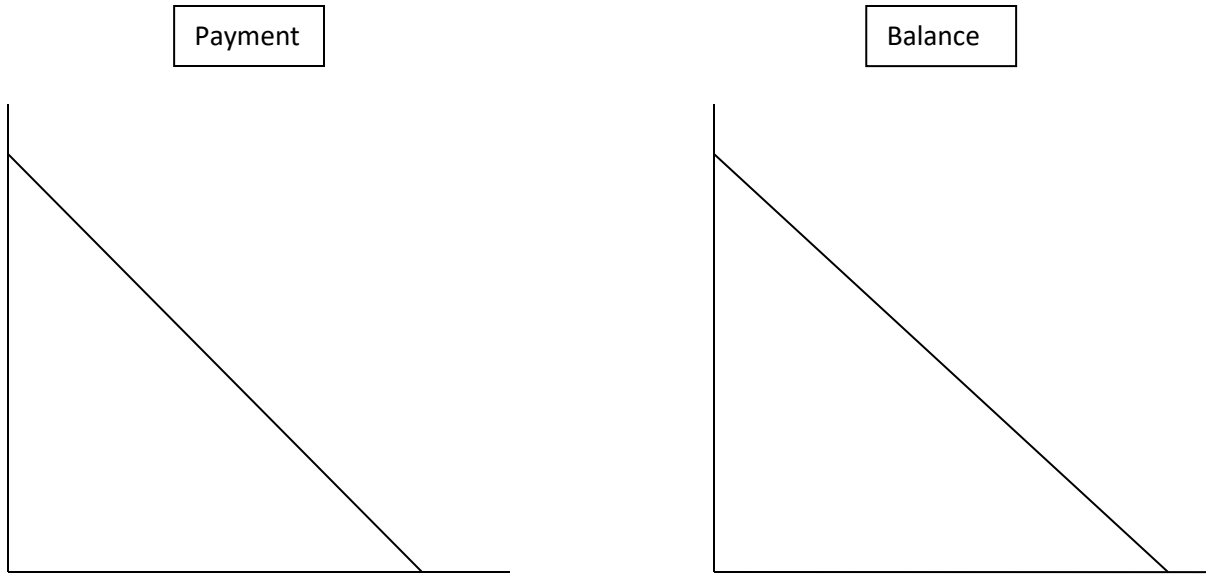
Monthly Payment and loan Balance (Constant Amortization Loan)

(1) Month	(2) Opening Balance	(3) Interest (.12÷12)	(4) Amortization	(3) + (4) Monthly Payment	(2) - (4) Ending Balance
1	60,000.00	600.00	166.67	766.67	59,833.33
2	59,833.33	598.33	166.67	765.00	59,666.67
3	59,666.67	596.67	166.67	763.33	59,500.00
4	59,500.00	595.00	166.67	761.67	59,333.33
5	59,333.33	593.33	166.67	760.00	59,166.67
6	59,166.67	591.67	166.67	758.33	59,000.00
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
360	166.67	1.67	166.67	168.34	0

- From the above table it can be noted that:
  - Monthly payment declines each month.
  - Interest in the early months is far much higher than the monthly amortization.
  - Interest declines below the monthly amortization towards loan maturity.

- CAM is considered an improvement but still very conservative since:
  - Emphasized amortization of loan
  - Ignores increase of borrowers' growth in real income hence
- Warranted further modification to the fully amortization, constant payment mortgage loan.

Figure 1 Loan payment and balance patterns for CAM



3.2.2 Fully Amortizing constant Payment Mortgage Loan (CPM)

- Most common loan payment pattern used in real estate finance from the post depression era to the present.
- Used extensively in financing single family residences and long-term lending on income producing properties.
- A constant monthly payment is calculated on an original loan amount at a fixed rate of interest for a given term.
- Payment includes interest and some repayment of principal.
- Like CAM the original loan amount is completely repaid at the end of the term and lender has earned fixed interest on monthly loan balance.
- The amount of amortization unlike with CAM varies each month
- Using the previous example calculation involves use of present value knowledge particularly discounting of annuities.

$$PV = R\sum_{t=1}^{n}\left[\frac{1}{1+\frac{i}{12}}\right]^{t}$$

Therefore, PV = R $\left((1- 1/(1+i)^{n})/i \right)$

Where PV represents the present value
R represents constant monthly payment (Annuity)
i represents fixed interest rate on mortgage
n represents number of months loan will remain outstanding

❖ Using the previous example calculate the constant monthly payment.

Loan made - sh 60,000
Loan term - 30 Years
Interest - 12% compounded monthly

❖ We are interested in solving for R ie constant monthly payment (annuity) that will repay loan amount, Present Value, and earn lender 12 per cent interest compounded monthly.

Monthly Payment × (MPVIFA, 12%, 360 Months) = sh 60,000

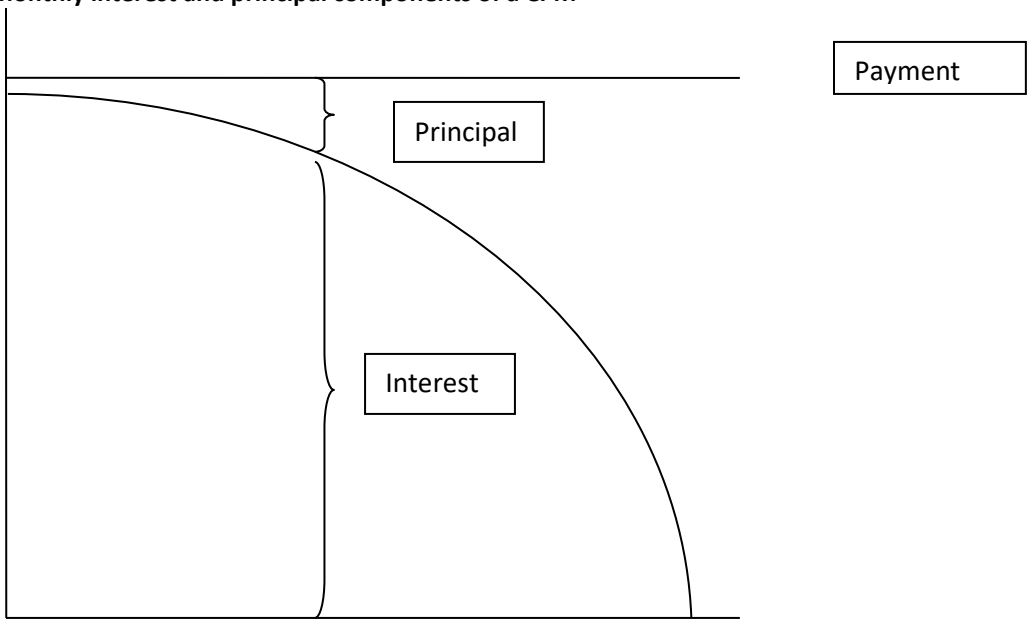
Monthly Payment × 97.218331 = sh 60,000
= sh 617.17

This is equivalent to multiplying the present value with (1 ÷ 97.21833) which simplifies calculation by allowing the use of Monthly Mortgage loan Constants. It represents a series of interest factors for various interest rates and loan maturities.

❖ Analysis of principal and interest:
- Mortgage payments made over the term of the loan (sh 617.27 × 360 = sh 222,181.20) are much higher than the amount of the loan (sh 60,000) since interest must be paid monthly.
- Interest is determined from the loan balance
- Low initial principal reduction, payments, results in a high portion of monthly interest charge.

Month	Opening Balance	Monthly Payment	Interest (.12÷12)	Amortization	Ending Balance
1	60,000.00	617.17	600.00	17.17	59,982.83
2	59,982.83	617.17	599.83	17.34	59,965.49
3	59,965.49	617.17	599.65	17.52	59,947.97
4	59,947.97	617.17	599.48	17.69	59,930.28
5	59,930.28	617.17	599.30	17.87	59,912.42
6	59,912.42	617.17	599.12	18.05	59,894.37
.	.	.	.	.	.
.	.	.	.	.	.
358	1815.08	617.17	18.15	599.02	1,216.06
359	1216.06	617.17	12.16	605.01	611.05
360	611.06	617.17	6.11	611.06	0.00

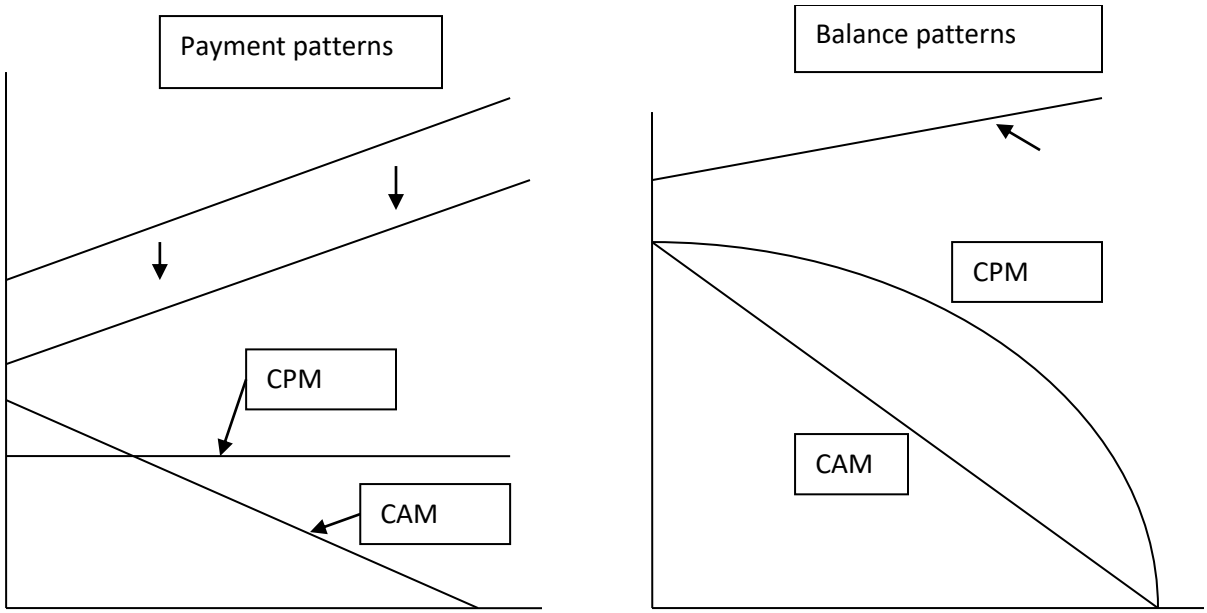
Figure 2 Monthly interest and principal components of a CPM



- ❖ Comparison of CAM & CPM
  - Significant reduction of monthly payment under CPM as opposed to CAM.
  - Under CAM payment decline through time while CPM payments remain constant throughout the term of the loan.
  - Present value of each stream is the same.
  - Value of the differences in monthly payment are offset in subsequent years .
  - Loan balance for CPM always exceeds that for CAM.

  Economic interpretation
  - More households could qualify for CPM loans than for a CAM.

Figure 3 Comparison of monthly payments and loan balances for CAM versus CPM



3.2.3 Partially Amortizing, Constant Payment Mortgage (CPM) Loans

Loans may be structured to accomplish one or more goals e.g. the borrower may desire (1) a payment that is lower than what would be available with a fully amortizing loan, (2) a non-zero outstanding loan balance on the maturity date.

Illustration;

A borrower and lender agree that a 6,000,000-loan made at 12 percent interest for 30 years will have a 400,000 balance (sometimes referred to as a balloon payment) on the maturity date if the loan will be on CPM terms. The following formula will be used.

$$PV = \sum_{t=1}^{n} \frac{PMT_t}{\left(1+\frac{i}{12}\right)t} + \frac{FV_n}{\left(1+\frac{i}{12}\right)^n}$$

To determine how much will be paid the following steps should be followed;

1. Determine the present value of the loan balance at the end of the loan term using the present value of a single-sum formula.
2. Deduct the present value of the loan balance from the initial loan. This will constitute the amount to be amortized.
3. Determine the amount to be paid using the present value annuity factor.

$PV = FV(1+i)^{-n}$

The present value of 400,000 in 30 years compounded monthly will be 11, 126.67.

The loan balance to be amortized is 6,000,000 – 11, 126.67 = 5, 988, 873.3

The amount to be paid monthly is 5, 988, 873.3 ÷ 97.22 = 61, 602.3

3.2.4 Zero Amortizing, or Interest Only—Constant Payment Mortgage (CPM) Loans

Constant monthly payments will be "interest only." Because the loan is interest only, the payment is simply equal to accrued interest or (12%÷12) × 6,000,000 = 60,000. This means, of course, that the loan balance at the end of each month will remain at 6,000,000. The monthly pattern of accrued interest, payments, and loan balances for the interest only loan

3.2.5 Negative Amortizing, Constant Payment Mortgage (CPM) Loans

This pattern may occur when: (1) the borrower and lender agree that the loan balance at maturity will be greater than the initial loan amount; that is, FV > PV, or (2) payments are negotiated to be lower than the periodic interest due on the loan.

Illustration;

If 60,000 is borrowed but the amount due at maturity will be 80,000, then monthly payments will be 594.28. It is important to note that the pay rate used to determine monthly payments is less than the interest rate specified in the note, also referred to as the "accrual rate," negative amortization occurs. This is because payments are not large enough to meet monthly interest requirements. The difference between payments actually made and those that would be made on an interest only loan are deferred and become additional amounts owed by the borrower to the lender. These amounts must also earn interest. The rate at which they earn interest is usually the same rate as the interest rate on the note.

- **Determining Loan Balance**
  - Statistical evidence indicate that most mortgage loans are repaid from 8 to 12 years after they are made.
  - This therefore means that determination of mortgage balance becomes necessary during the term of the loan.
  - In the example covered assume after 10 years the borrower decides to sell the property and to buy another.
  - The balance can be determined in two ways:
    1. Discounting monthly payments by the annual rate:

       Mortgage Balance = sh 617.17 (MPVIFA, 12%, 20 Years)
       = sh 617.17 (90.819416)
       = sh 56,051.02

       Note that by discounting using the annual rate in essence removes the interest from the payments, which includes interest.

    2. Using future value interest factor to calculate the percentage mortgage balance:

       Percentage Mortgage Balance = 1 – {(MFVIFA, 12%, 10 Yrs) ÷ (MFVIFA, 12%, 30 Yrs)}
       = 1 – (230.03867 ÷ 3,494.96451)
       = 93.42%

Mortgage Balance = 93.42% of sh 60.000
= sh 56,052

3.2.3 Loan Closing costs & Effective Borrowing Costs

❖ Categories of closing costs

1. Statutory costs:

- Charges for legal requirements pertaining to title transfer, recording of the deed and other fees required by state and council by laws.
- They are charged to the borrower and collected at the title closing or loan closing.
- They do not provide income to the lender and thus not included as additional finance charge.
- Statutory costs are also charging that would have been paid even on cash purchase.

2. Third-party charges:

- Third party charges include charges for services such as legal fees, appraisals, surveys, past inspection and title insurance.
- They occur even on cash purchase.
- May be collected by the lender or Title Company and in turn paid out to third parties.
- They do not constitute additional income to the lender and not associated with financing the real estate.

3. Additional finance charges:

- These are charges that affect the cost of borrowing and are levied by the lender.
- They are referred to as loan fees by lenders and intended to cover expenses such as processing loan application; preparation of loan document and amortization schedules; obtaining credit reports; and any other expenses to be covered by the borrower.
- They may be separately itemized or grouped as origination fees.
- They are charged by lenders instead of higher interest rates.
- This will ensure recovery of fixed cost in case of early repayment of the loan. That is to say if interest rate were to be increased the origination costs would not have been recovered were the borrower to make early repayment of the loan.
- Loan discounts which also constitute additional charges may be itemized separately. Here the lender and borrower agree to discount the loan based on a specified loan amount and thereby increasing the yield on the mortgage. Payments however are based on the contract amount. For example a discount of 3 percent charged on sh 60,000 loan means that only sh 58,200 is disbursed to the lender but will make payments based on the loan contract amount, sh 60,000.

The reasons for loan discounts include

a) Upward and downward movements of mortgage rates necessitate change in contracted rate. This however can be avoided by using loan discounts and continuing to quote the original loan rate.
b) Mortgage loans are originated by lenders then sold to investors. Loan discounts therefore ensures that the lender gains from increase in interest rates by adding discount points. The loan will be originated at an interest rate equal to the yield promised to the investor and the lender will earn the discount points.

c) Ensures better pricing of loans to the risk taken. They may be charged to compensate for higher risk taken by some borrowers.
   - Note that loan origination and discount fees increased borrowing costs and therefore effective borrowing is calculated for alternative

❖ Assignment on effect of loan fees and borrowing costs (example in course text)

Loan made	-	sh 60,000
Loan term		-30 Years
Interest	-	12% compounded monthly
Origination fee	-	3%

1. Calculation of net cash disbursed

Contractual loan amount	sh 60,000
Less: Origination fee	1,800
Net cash disbursed	sh 58,200

2. Calculation of monthly repayments

Monthly Payment × (MPVIFA, 12%, 360 Mths) =sh 60,000
Monthly Payment × 97.218331 = sh 60,000
= sh 617.17

3. Calculation of the effective interest rate

Monthly Payment × (MPVIFA, ?%, 360 Mths) = Amount disbursed
sh 617.17 × (MPVIFA, ?%, 360 Mths) = sh 58,200
(MPVIFA, ?%, 360 Mths) = sh 58,200 ÷ sh 617.17
= 94.301408

Using tables the interest factor that we are looking for is between 12% and 13% and the exact interest rate can be found using interpolation as follows.

(MPVIFA, 12%, 30 Yrs)	= 97.218	(MPVIFA, 12%, 30 yrs)	= 97.218
(MPVIFA, 13%, 30 yrs)	= 90.400	Desired MPVIFA	= 94.301
Difference	= 6.818	Difference	= 2.917

(2.917 – 6.818) × 1% = 0.43%
12% + 0.43% = 12.43%

4. Rule of thumb – for every 2 percent points in origination fee charged the borrower the effective cost to the borrower, or investment yield earned by the lender, increases by approximately one fourth of a percent above the contract rate.

❖ Truth in lending requirements and the Annual Percentage Rate (APR)

- Lender must disclose to the borrower the annual percentage rate being charged on the loan.
- Calculated as above and disclosed to the borrower at closing rounding the interest rate up or down to the nearest one-eight.

❖ Loan fees and early repayment

- When loan fees are charged and the loan is paid off before maturity, the effective interest cost of the loan increase even further.
- Using our example if the loan was repaid after five years, we need to determine the loan balance after the five years.

  Loan balance factor × Mortgage amount
  0.9766 × sh 60,000 = sh 58,596
- The effective interest rate is given by:

  sh 58,2000 = sh 617.17 (MPVIFA, ?%, 5 yrs) + sh 58,200 (MPIF, ?%, 5 yrs)
- The above problem brings about a complicated discounting situation since we have an annuity in the form of monthly payments for the five years and a loan balance or single lump sum receipt of cash.
- This can be solved using the following steps:
  1. Discounting at 12%:
     sh 617.17 (44.955038) + sh 58,596 (0.55045)= PV = sh 60,000
     Discounting at 13%:
     sh 617.17 (43.950107) + sh 58,596 (0.523874) = PV = sh 57,822

     Difference in Discounting factor 1% and PV , sh 2,178
  2. Desired present value = sh 58,200
  3. Difference in PV at 12% and desired PV
     sh 60,000 - sh 58,200 = sh 1,800
  4. Interpolating:
     (sh 1800 ÷ sh 2,178) × 1% = 0.83

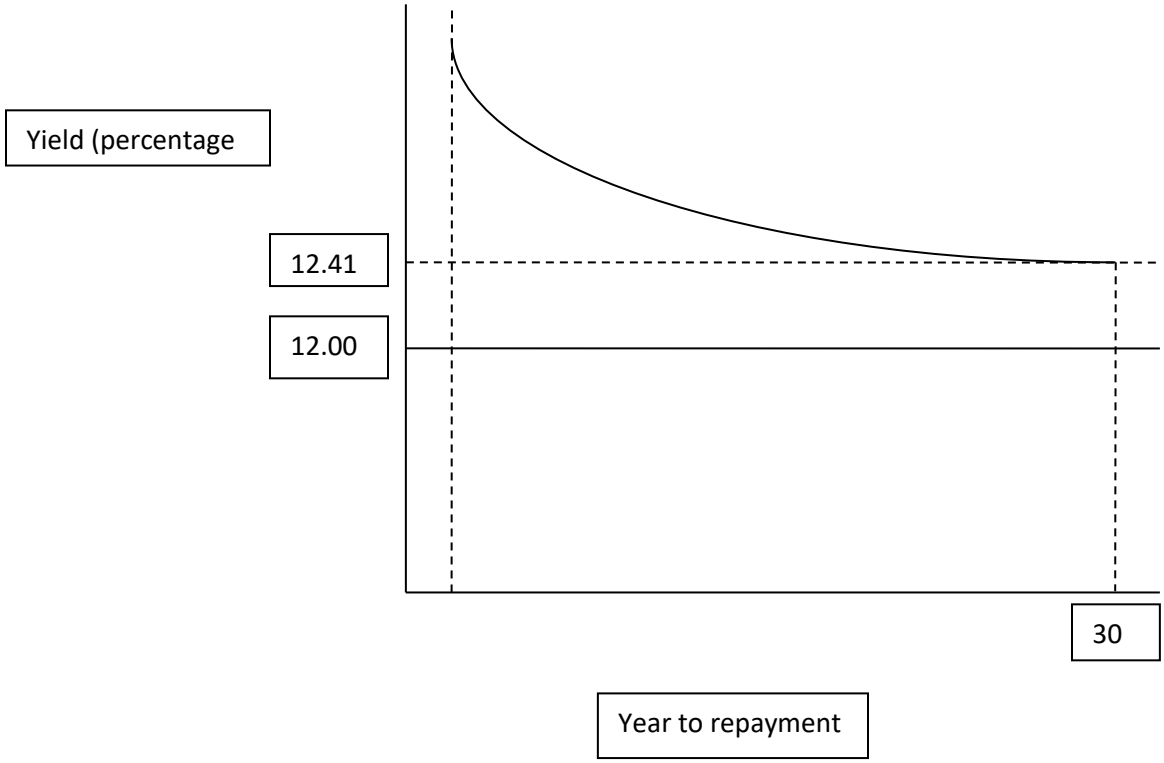
     12% + 0.83% = 12.83%

- Actual yield is higher than both the contract interest rate and the effective yield assuming loan fees of 3%.
- The 12.83% yield is not reported as being the APR since neither the borrower nor lender knows for certain that the loan will be repaid ahead of schedule.

❖ Relationship between yield and time

- The effective interest cost on a mortgage will always be equal to the contract rate when no finance charges are made.

- Where origination fees are charged two situations occur:
    1. The effective yield will be higher than the contract rate of interest.
    2. The yield will increase as repayment occurs sooner in the life of the mortgage.



❖ Prepayment penalties

- Many mortgages provide explicitly for a penalty to be paid by the borrower should the borrower desire to prepay the loan.
- Reasons for penalties:
    1. To recover loan origination fees charged at closing.
    2. Lender has contracted to extend funds for a specified time in our example, 30 years; hence early repayment represents unanticipated inflow of funds.
    3. Penalties are not included in the computation of the APR, thus not disclosed. It therefore represents a technique used by lenders to increase yield.
- Illustration (course text): assume that further to the details in our last example there was a 3% prepayment on the mortgage balance in addition to the 3% discount.
  If the loan is repaid after five years the effective interest cost is determined as follows:

The mortgage balance as earlier calculated is sh 58,596 and therefore the prepayment penalty will be:

Prepayment penalty = 3% of sh 58,596
= sh 1,758

The determination of the discount factor is given by:

sh 58,200 = sh 617.17 (MPVIFA? %, 5 yrs) + sh 60,354 (MPVIF, ?%, 5 yrs)

This can be solved using the following steps:

1. Discounting at 13%
   PV = sh 617.17 (43.950107) + sh 60,354 (0.523874)
   = sh 58,743
2. Discounting at 14%
   PV = sh 617.17 (42.977016) + sh 60,354 (0.498601)
   = sh 56,617
3. Difference in interest rate is 1%
4. Difference in PV is sh 2,126
5. Difference in PV in step 1 and desired PV is sh 543
6. Therefore the effective interest rate or yield is
   (sh 543 ÷ sh 2,126) × 1% = 0.26

   13% + 0.26%= 13.26%

3.3 Inflation and Mortgage Pricing Problems

- From our discussion on CAM and CPM:
  - Arising from problems caused by inflation in relation to the standard mortgage instruments (CAM & CPM) other mortgage instruments have been proposed.
  - We therefore need to look at the effect inflation has on standard mortgage instruments and problems faced by the borrowers and lenders.
- Effects on lenders and borrowers:
  - Using our previous example
    1) Assuming no inflation

       Loan amount = sh 60,000
       Loan term = 30 yrs
       Inflation = 0%
       Real interest rate = 3%
       Risk premium = 1%

       i = r + P + f
       = 3% + 1% + 0%
       = 4%

Monthly payment = sh 286 pm

2) Assuming inflation is 6%

Inflation premium = 6%

$i = r + P + f$

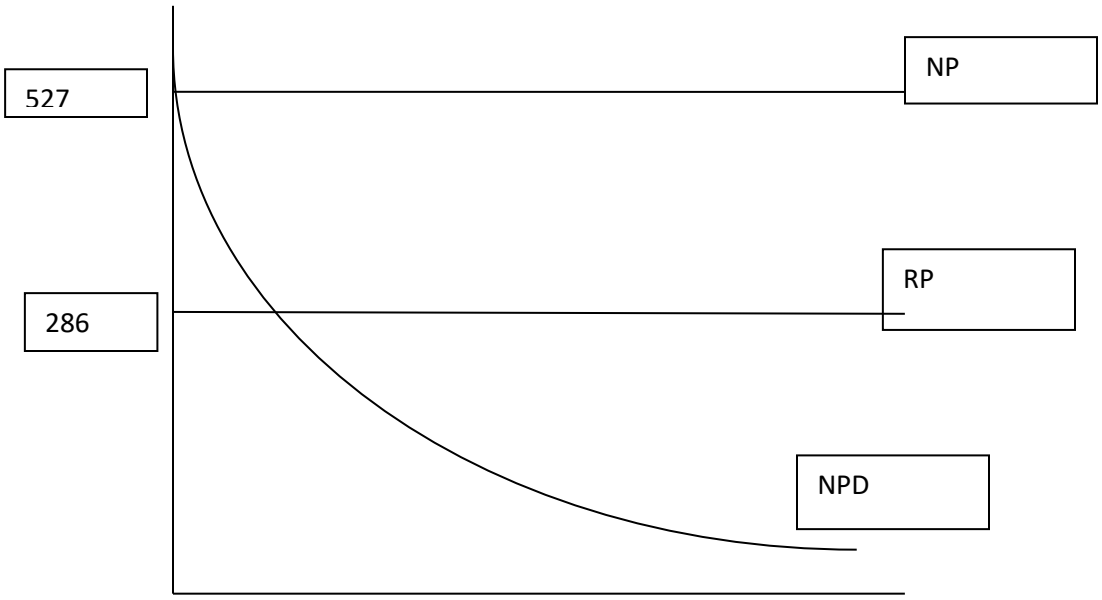
$= 3\% + 1\% + 6\%$

$= 10\%$

Monthly payment = sh 527 pm

- Note that there is an 84% rise in monthly payment with inflation ie by sh 241

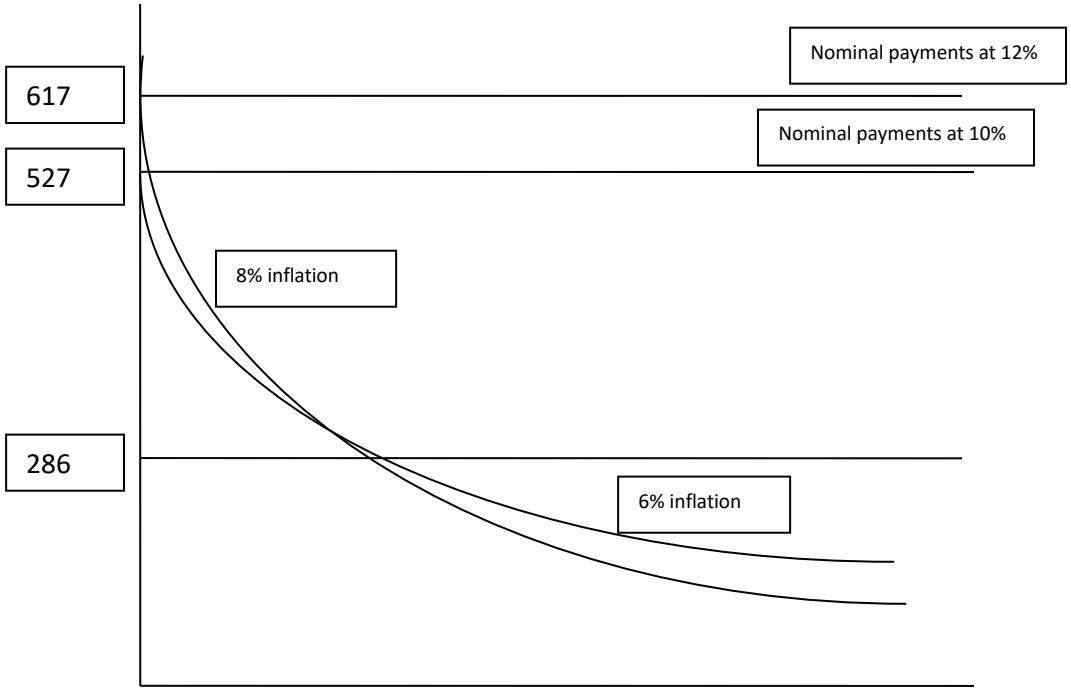
Figure 4 Real and nominal values of mortgage payments



- Curve NPD represents the real value of the monthly payment determined by deflating the sh 527 nominal monthly payment by the rate of inflation.
- More real dollars must be collected in the early years of the loan.
- Tilting is the relationship in which the real value of the payment stream (NPD) is greater than RP in the early years and falls below RP in the last years. That is tilting the real payment stream in the early years to make up for the loss in purchasing power in the later years.
- Note that:
    1) Even with increase in nominal and real income it would not be enough to offset the tilt effect in the early years of a loan.
    2) First-time homeowners would therefore not qualify for Constant payment Mortgages during periods of rising inflation.

3) As the rate of inflation increases the tilt effect increases.

Figure 5 Relationship between Real and Nominal Mortgage Payments at various rates of inflation



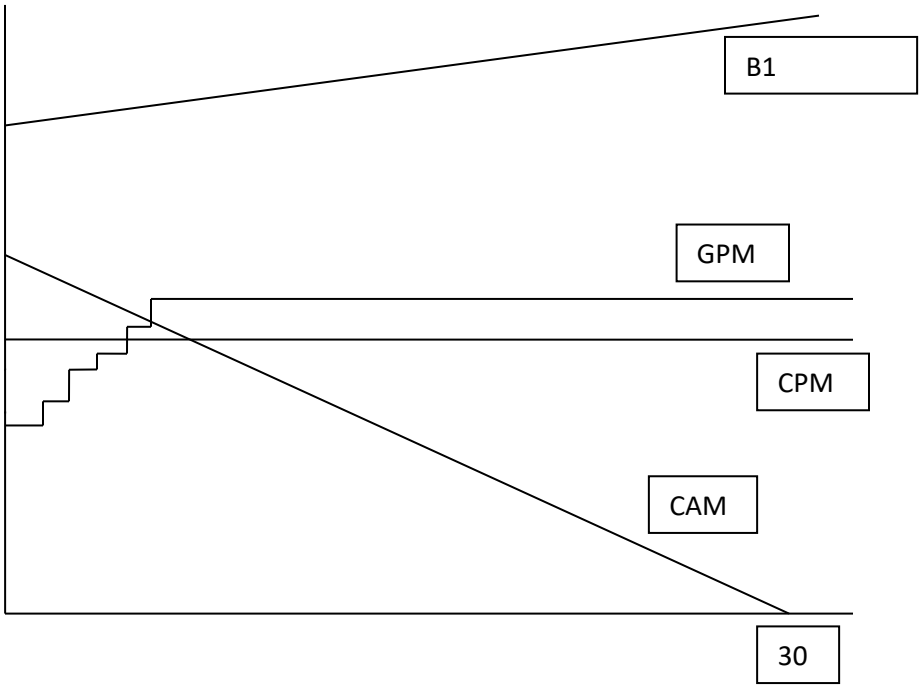
3.3.1 The Graduated Payment Mortgage (GPM)

❖ Overview of GPM

- Represents an example of new mortgage instruments introduced by lenders to mitigate the effect of inflation on mortgage interest rates.
- The objective of GPM is to provide for a series of mortgage payments that are lower in the initial years of the loan than they would be with a standard mortgage loan.
- GPM payments then are gradually increased at a predetermined rate as borrower incomes are expected to rise over time.
- The tilt effect is thus offset to some extent and reduces the burden to households.
- In the early years GPM payments are lower than those of CPM.
- However GPM payments must eventually exceed the level payment on the CPM loan to make up for the lower payments on the GPM in the early years.
- Advantages of GPM:
    1) Initial payment levels are significantly lower.
    2) In the early years payment correspond more closely to increase in borrower's income.

Interest Rate	10%	11%	12%	13%	14%
Constant Payments	sh 526.54	sh 571.39	617.17	sh 663.72	sh 710.94
GPM payments graduated (7.5% annually)					
1	400.22	436.96	474.83	513.71	553.51
2	430.24	469.73	510.44	552.24	595.03
3	462.51	504.96	548.72	593.66	639.65
4	497.19	542.83	589.87	638.18	687.63
5	534.48	583.55	634.11	686.04	739.2
6 to 30	574.57	627.31	681.67	737.5	794.64

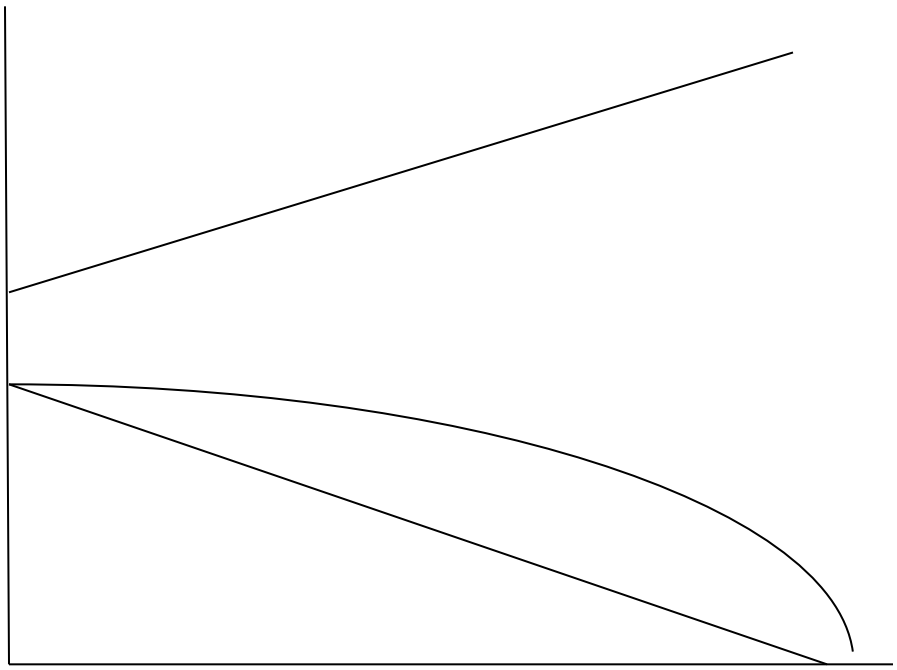
Figure 6 Comparision of mortgage payment patterns



❖ Outstanding loan balances under GPM

- Loan balances increase in the initial years of the loan.
- Remains higher than those of standard mortgage instrument until maturity.
- If borrower sells property in the early years the borrower would pay more than originally borrowed.
- Loan balance increase because GPM payment are lower than the monthly interest requirement at 12%.
- Margin of safety refers to the difference between property value and loan balance which is lower for GPM hence making GPM loan riskier than CMP.

Year	Beginning Balance	Required monthly interest payment	GPM payment	Loan (amort)	Change in balance	Ending Balance
	sh					
1	60,000.00	600.00	474.83	125.17	1,587.47	61,587.47
2	61,587.47	615.87	510.44	105.43	1,337.12	62,924.59
3	62,924.59	629.25	548.72	80.53	1,021.32	63,945.91
4	63,945.91	639.46	589.87	49.59	628.93	64,574.84
5	64,574.84	645.75	634.11	11.64	147.62	64,722.46
6	64,722.46	647.22	681.67	(34.45)	(436.91)	64,285.55



4.0 ADJUSTABLE RATE & VARIABLE PAYMENT MORTGAGES

- ❖ Overview
  - Fixed rate mortgages loans may cause serious problems to lenders who must pay market interest rates on savings.
  - Interest costs on savings may rise relative interest revenues from mortgage loans.
  - ARM are designed with variable payments provision that change with economic conditions.
  - Lenders and borrowers share the risk of interest rate changes or interest rate risk to different level.
- ❖ ARMS and lender considerations
  - Under FRMs lenders underwrite the risk of any significant changes in the implicit components of mortgage interest rates.
  - Any underestimation of any of the components leads to a financial loss.
  - Losses incurred by lenders result in gains to borrowers.
  - When interest rates decline borrowers usually try to refinance their loans hence lenders do not benefit.
  - Therefore with FRM risk bearing is not symmetric: loss when interest rate increase is not equally offset by gains if interest rates decline.
  - This gives rise to borrowing short and lending long ie imbalance in the maturity structure of assets and liabilities (maturity gap).

4.1 The Price level Adjusted Mortgage (PLAM)

- ❖ Overview
  - Recall the determinants of mortgage interest rates.

    $$i = r + p + f$$

  - Most difficult variable to predict was premium for inflation *f*.
  - It has been suggested that lenders should originate mortgages at interest rates that reflect lender expectations of *r* plus *p* ($r + P$).
  - After determining r and p, the PLAM loan balance would be adjusted up or down by a price index.
  - Payments would then be based on a new balance adjusted for inflation.
  - All risks are thereby shifted to the borrower ie risk of changes in market interest rates brought about by inflation, f.
  - Lender would still bear the risk of any unanticipated change in r or p (variables may not be independent ie may interact with one another.
- ❖ Illustration

  Loan amount = sh60,000
  Loan term = 30 yrs
  Real rate = 3%
  Risk premium = 1%

  Loan balance indexed to consumer price index (CPI) and adjusted annually.

  Initial monthly payment will be sh 286
  Loan balance after one year will be sh58,943

If CPI increase by say 6% during the first year then:
Loan balance at the end of the first year will be

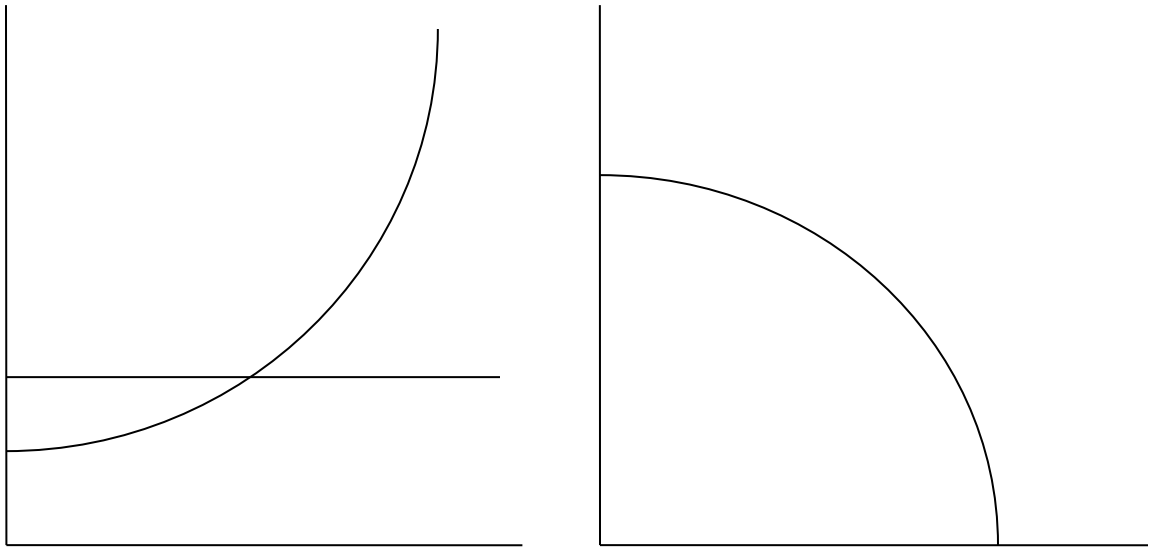
sh58,943 × 1.06 = sh62,480

New balance will be repayable over 29 years

Each year thereafter the process would take three steps:

1) Computing loan balance using amortization schedule based on 4% interest rate.
2) Increasing the balance by the change in the CPI during the next year.
3) Computing the new payment over the remaining loan term.

Figure 7 Payments and loan balance patterns



❖ Note the following:

- PLAM payments increase at approximately the same rate as the change in price level.
- PLAM outstanding balance increase but declines towards maturity.
- Payments rise because of the effect of increasing price index on loan balance and each succeeding year payments is computed over a shorter remaining loan term.
- Comparing PLAM to CPM in FRM payment in the later are higher and lower in the former implying many households could qualify under PLAM.
- Mortgage yields would correspond more closely with changes in interest rates on deposits.

❖ Problems with PLAM include:

- Appropriateness of CPI as a proper index to use. Increase in loan balances faster than property values. This arise when increase in other components of the CPI are faster than housing prices. Borrowers would have an incentive to default.
- Relationship between mortgage payments and borrower incomes. Tilt problem is reduced since payment would be matched more closely with borrower income. But CPI may not necessarily change in the same way with borrower income.
- Price level chosen for indexation is usually measured on an historical or ex post basis that is based on data collected in the previous period but published currently. Creates a lag between realization of income in one period and higher payment in the next.
- Modification in the types of deposits that are offered so that when prices and interest rates increase yields on both PLAM loans and savings deposits would rise together. Otherwise, revenue from mortgage could fluctuate more than deposits costs and a profit squeeze could develop.

4.2 Adjustable-Rate Mortgages

❖ General overview

- Lenders preference in increasingly shifting from Price Level adjusted mortgages to mortgages with interest rates that are indexed to other market interest rates.
- Lenders thus avoid the hassle of estimating real interest rates and risk premiums for term period of the loan.
- Lenders earn expected yields based on expected future values for r, p and f over a future period of time.
- Note that such indices are continuously updated in the market eg base rates, Treasury bill rates etc.
- ARM adjustments are therefore more timely for lender than PLAM.

❖ ARMs Illustrated

- An ARM is initiated as follows:

  Loan amount = sh60,000
  Initial interest = 10%
  Loan term = 30 yrs

  Payments to be adjusted at the end of each year based on an interest rate determined by a specified index.

  Monthly payment in the first year will be sh 527 per month

  In the second year assume that the market index were to rise and change the interest rate on the ARM to 12% the monthly payment is given by:

  MP = sh59,666(MLC, 12%, 348 mos)
  = sh59,666(0.010324)
  = sh616

- Observations:

1) Use of ARMs does not completely eliminate the possibility of lender realizing losses.
2) The longer the adjustment interval the greater the interest rate risk to the lender.
3) As the lender assumes less interest rate risk the borrower incurs more interest rate risk.

- ARM indexes
  1) Interest rates on 6-month Treasury bill
  2) Interest rate on 1-year Treasury securities
  3) Interest rate on 3-year Treasury securities
  4) Interest rate on 5-year Treasury securities
  5) Weighted average national cost of funds (deposits)
- Other ARM characteristics
  1) Initial interest rate
  2) Index – interest rate series agreed by borrower and lender
  3) Adjustment interval – period of time between mortgage payment adjustment.
  4) Margin – constant spread/premium in addition to index.
  5) Composite rate – the sum of the index plus the margin which is used to establish the new rate of interest.
  6) Limitations or caps – maximum increases allowed in payments, interest rates, maturity extensions and negative amortization
  7) Negative amortization
  8) Floors – maximum reduction in payments and / or interest rates between adjustment intervals and/or over the life of the loan.
  9) Assumability – the ability of borrower to allow a subsequent purchaser of a property to assume a loan under the existing terms.
  10) Discount points
  11) Prepayment privileges – allowed without penalty.

- Problems with ARMS faced by lender and borrowers
  1) Complex and difficult to understand – borrowers.
  2) Uncertainty when making ARMs – lenders.
  3) Lack of market experience – borrower.
  4) Increase of risk of default – lender.
     - Affects borrower ability to make mortgage payments
     - If negative amortization is allowed loan balance may increase more than value of property.
- Expected yield or cost of borrowing with an ARM depends on the ARM provisions:
  1) Initial interest rate
  2) The index to which the interest rate is tied
  3) The margin, or spread over the index choosen
  4) Discount points charged at origination
  5) Frequency of payment adjustments

6) Whether caps or floors on the interest rate, payments and/or loan balances are included.

4.4 Shared Appreciation Mortgages (SAM)

❖ Overview

- Designed also to deal with the problem of uncertain future inflation.
- Similar to PLAM with lower contract interest rate which is adjusted for inflation.
- However, with SAM the lender receives an agreed upon percentage of the appreciation in the value of the home used as collateral for the loan.

❖ Illustration

Loan amount	sh 60,000
SAM interest	9%
Loan term	30 Years
Value of property	sh90,000

Lender receives one third of appreciation in the value of the home.

Payment to lender for appreciation due after 10 years or whenever home is sold whichever is earlier.

1) Monthly payment calculated based on our previous formula is
   MP = sh 482.77 per month

   Note that the monthly payment is lower than for CPM.
2) Value of house after 10 years assuming that it is expected to increase at the inflation rate of 6% is given by:

   Value = sh 90,000 × 1.06^{10}
   = sh161.176

3) The appreciation is therefore sh161.176 - sh90,000 = sh 71.176. The lender gets a third of the difference.

   = 1/3 of sh71.176
   = sh23,725

   The lender will receive this in addition to the loan balance.
4) The effective yield or effective cost of borrowing is given by the monthly payments over the 10 years and the sum of the loan balance and the appreciation portion payable to the lender given by:

   Sh 60,000 = sh482.77 (MPVIFA, ?%, 10 yrs.) + sh77,382(MPVIF, ?%, 10 yrs)

   The effective yield based on the above is 11.24%.

❖ Observations

- Mortgage payments are based on a lower interest rate like PLAM.
- Payments remain the same.

- Adjustment for inflation is made at once at a pre determined future date.
- Inflation premium is paid from the sale of the property or on re-financing the loan.
- Inflation rate is that of the property and not CPI.

❖ Reasons why SAM is not common.
Despite the appealing features represented by SAM it is not common in practice and this is because.

1) Lenders prefer not to wait for years before receiving compensation.
2) Other factors in addition to inflation may affect the future value of a property.
3) Amount of appreciation depends on other actions by the borrower which may affect the value of property such as maintenance.
4) Tax implications of compensation: is the compensation interest income or capital gain and what is the tax implication under each?