**TOPIC 1 FINANCIAL INSTITUTIONS IN KENYA**

**Introduction**

Financial institutions are those organizations that are involved in providing various types of financial services to their customers. A financial institution can also be defined as that type of an institution, which performs the collection of funds from private investors and public investors and utilizes those funds in financial assets.

The financial institutions are controlled and supervised by the rules and regulations delineated by government authorities. Examples of financial institutions are the following:

* Commercial Banks and Mortgage finance Institutions.
* Stock Brokerage Firms and Investment Banks.
* Non Banking Financial Institutions
* Building Societies
* Asset Management Firms
* Credit Unions
* Insurance Companies
* Stock exchanges
* Mutual Funds.
* Hedge Funds

Some of the financial institutions also function as mediators in share markets and debt security markets. There the principal function of financial institutions is to collect funds from the investors and direct the funds to various financial services providers in search for those funds.

Financial institutions deal with various financial activities associated with bonds, debentures, stocks, loans, risk diversification, insurance, hedging, retirement planning, investment, portfolio management, and many other types of related functions. With the help of their functions, the financial institutions transfer money or funds to various tiers of economy and thus play a significant role in acting upon the domestic and the international economic scenario.  
  
For carrying out their business operations, financial institutions implement different types of economic models. They assist their clients and investors to maximize their profits by rendering appropriate guidance. Financial institutions also impart a wide range of educational programs to educate the investors on the fundamentals of investment and also regarding the valuation of stock, bonds, assets, foreign exchanges, and commodities.   
  
Financial institutions can be either private or public in nature.

**A. MONEY MARKET INSTITUTIONS**

1. **Central Bank of Kenya**

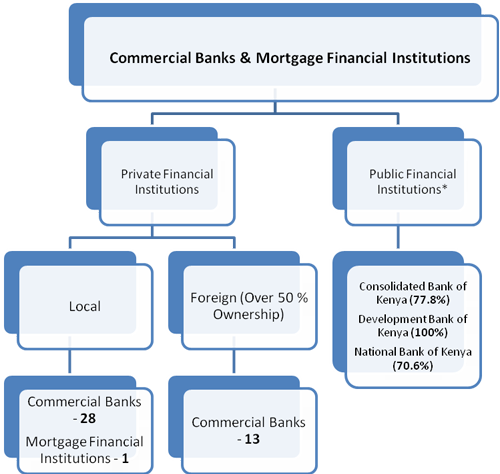
The Central Bank of Kenya was established in 1966 through an Act of Parliament - the Central Bank of Kenya Act of 1966. The establishment of the Bank was a direct result of the desire among the three East African states to have independent monetary and financial policies. This led to the collapse of the East Africa Currency Board (EACB) in mid 1960s.

Section 4 of the Central Bank of Kenya Act states the core mandate of the Bank as follows: (1) the principal object of the Bank shall be to formulate and implement monetary policy directed to achieving and maintaining stability in the general level of prices; (2) the Bank shall foster the liquidity, solvency and proper functioning of a stable market- based financial system; and (3) subject to (1) and (2), the Bank shall support the economic policy of the Government, including its objectives for growth and employment.

**Subsidiary mandate of the CBK**

The other objectives of the Bank are enumerated under Section 4A of the Act, and empower the Bank to:-

* Formulate and implement foreign exchange policy
* Hold and manage its foreign exchange reserves;
* License and supervise authorized dealers;
* Formulate and implement such policies as best promote the establishment regulation and supervision of efficient and effective payment, clearing and settlement systems;
* Act as banker and adviser to, and as fiscal agent of the Government; and
* Issue currency notes and coins.

1. **Commercial Banks and Mortgage (S & L) Financial Institutions  
   Commercial Banks and Mortgage Finance Institutions** are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential Guidelines issued thereunder. They are the dominant players in the Kenyan Banking system and closer attention is paid to them while conducting off-site and on-site surveillance to ensure that they are in compliance with the laws and regulations. Currently there are there are 44 licensed commercial banks and 1 mortgage finance company.   
     
   Out of the 46 institutions, 33 are locally owned and 13 are foreign owned. The locally owned financial institutions comprise 3 banks with significant shareholding by the Government and State Corporations, 29 commercial banks and 1 mortgage finance institution. The ownership structure of the commercial banks and mortgage finance company is as depicted in the chart below:   
    **  
   \*Shareholding by the Government and state corporations**

**Agent banking**

In the past year (2010), the central bank has allowed for agent banking after drafting regulations for the agency banking. Agent means an entity that has been contracted by an institution and approved by the Central Bank to provide the services of the institution on behalf of the institution in the manner specified in the Guideline. Agent banking is aimed at:

i) Increasing financial services outreach and to promote financial inclusion to the un-banked and under-banked population without risking the safety and soundness of the banking system; and,

ii) Encouraging institutions to use agents in the provision of banking services so as to reduce the cost of financial services and to foster financial inclusion, reach and depth.

(Refer to the Central Bank of Kenya website at [www.centralbank.go.ke](http://www.centralbank.go.ke) for more details)

1. **MICROFINANCE INSTITUTIONS**

The Microfinance Act, 2006 and the Microfinance Regulations issued there under sets out the legal, regulatory and supervisory framework for the microfinance industry in Kenya. The Microfinance Act became operational with effect from 2nd May 2008.   
  
The principal object of the Microfinance Act is to regulate the establishment, business and operations of microfinance institutions in Kenya through licensing and supervision. The Act enables Deposit Taking Microfinance Institutions licensed by the Central Bank of Kenya to mobilize savings from the general public, thus promoting competition, efficiency and access.  
  
It is, therefore, expected that the microfinance industry will play a pivotal role in deepening financial markets and enhancing access to financial services and products by majority of the Kenyans.  There are 4 licensed deposit taking MFIs - Faulu Kenya Deposit Taking Microfinance Limited, and Kenya Women Finance Trust Deposit Taking Microfinance Limited, SMEP Deposit Taking Microfinance Limited, and Uwezo DTM Limited . Regulations for Non Deposit Taking Microfinance Institutions are yet to be put in place

1. **FOREX BUREAUS**

Forex Bureaus were established and first licensed in January 1995 to foster competition in the foreign exchange market and to narrow the exchange rate spread in the market. As authorized dealers, forex bureaus conduct business and are regulated under the provisions of the Central Bank of Kenya Act (Cap 491). Currently there are one hundred and thirty (130) licensed Forex Bureaus.

1. **CREDIT REFERENCE BUREAUS (Contemporary issue in Banking)**

Credit Reference bureaus complement the central role played by banks and other financial institutions in extending financial services within an economy. CRBs help lenders make faster and more accurate credit decisions. They collect, manage and disseminate customer information to lenders with in a provided regulatory framework – in Kenya, the Banking (Credit Reference Bureau) Regulations, 2008 which was operationalised effective 2nd February 2009. Credit histories not only provide necessary input for credit underwriting, but also allow borrowers to take their credit history from one financial institution to another, thereby making lending markets more competitive and, in the end, more affordable. Credit bureaus assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud. Sharing of information between financial institutions in respect of customer credit behavior, therefore, has a positive economic impact.   
  
The Kenyan banking sector was in the 80’s and 90’s saddled with a momentous Non-Performing Loans (NPLs) portfolio. This invariably led to the collapse of some banks. One of the catalysts in this scenario were “Serial defaulters”, who borrowed from various banks with no intention of repaying the loans. Undoubtedly these defaulters thrived in the “information asymmetry” environment that prevailed due to lack of a credit information sharing mechanism.

The Banking (Credit Reference Bureau) Regulations 2008 will govern licensing, operation and supervision of CRBs by the Central Bank of Kenya. The development of a sustainable information sharing industry is therefore recognized as a key component of financial sector reforms in Kenya and almost all developing and emerging economies. There is currently only one licensed credit reference bureau in Kenya- Credit Reference Bureau Africa Ltd.

**B. CAPITAL MARKET INSTITUTIONS**

**1. Investment Banks**

Are financial intermidiaries charged with the responsibility of garnering the savings of thrifty people and directing these funds into the business enterprises seeking capital for acquisition of plant and equipment, and for holding inventories.

**Functions of investment banks.**

1. Function concerning the formation of new capital.
   * Origination- Investment bankers assist issuing company to work out the details of financing including NSE registration statements and preparing prospectuses in case of public issue.
   * Underwriting- in underwriting, the investment banker enters into agreement with the issuer to take up all such securities that are not taken up by the public. In so doing, they save the issuer from the uncertainties of new issues. We can distinguish between **securities underwriting** and **bank underwriting**. Investments bank conduct **securities underwriting**, the selling of newly issued securities such as stock. Commercial banks and mortgage finance insitutions do **bank underwriting**, the detailed analysis preceeding the granting of a loan.
2. Function subordinate to capital formation.
   * Secondary distribution of large blocks of outstanding securities- Frequently owners of large blocks of securities like to liquidate their holdings in cash. This can be done via an investment bank. Investment banks also come handy for the purpose of negotiating an acquisition or merger.
   * Acting as a broker or dealer in security market- being a member of a stock exchange either as a broker or agent, the investment banks help security holders liquidate their holdings.
   * Advisory and technical services- Investment banks offer advice to companies and individuals for the management of their portfolio.
   * Research activities: investment banks undertake this function in ascertaining the quality/ financial soundness and prospects of companies that they underwrite.

**2. Development Banks**

The term development bank was used for the first time in the post second war period to refer to the institutional financial machinery built for fostering industarial growth in a country. These institutions are charged with supplying the basic ingridients of development- capital, knowledge and entreprenuership e.g. Development bank of Kenya, EADB.

**Functions of development banks**

1. Help alleviate endemic problems of unemployment and poverty.
2. Act as a catalyst for quickening industrial development in a country.
3. Providing term capital to entreprenuers.
4. Promote entreprenuership by undertaking potential industry surveys, identifying growth prospects, writing feasibility reports, and providing technical, and managerial to interested entreprenuers.
5. Widen entreprenuership base by organising training programmes for potential entreprenuers.

**3. Mutual Funds**

A mutual fund is an institutional device through which investors pool their funds to invest in a diversified portfolio of securities, thus spreading and reducing their risk.. The fund is usually manned by an investment manager in an investment bank. In effect, a mutual fund is an open end investment company- i.e. membership is open , and is willing to buy new securities at any time. Types of mutual funds include- Stock/ equity funds, bond fund, balanced fund, leveraged funds and taxation funds.

Most mutual funds sell their services on the basis of the supposed superiority in picking stocks. However as we shall see later, most investors choose mutual funds due to their diversification benefits, and not due to better returns offered by mutual funds (Refer to efficient market hypothesis). If an individual were to purchase shares in one hundred different companies, most of his/her cash would be eaten up by brokerage commissions. Because mutual funds deal in volumes, brokerage commissions are lower. thus by purchasing UNIT TRUSTS offered by mutual funds, an individual can effectively own a proportionate share of stocks of many companies.

4. **Stock exchanges**

A stock exchange is an institution, organization or association that serves as a market for trading financial instruments such as [stocks](http://www.wikinvest.com/wiki/What_is_a_stock%3F), [bonds](http://www.wikinvest.com/wiki/Bonds) and their related [derivatives](http://www.wikinvest.com/wiki/Derivatives). Most modern stock exchanges, like [NYSE Euronext](http://www.wikinvest.com/wiki/NYSE_Euronext), JSE and the NSE have both a trading floor and an [electronic trading](http://www.wikinvest.com/wiki/Electronic_trading) system.

The first stock exchanges date back to the Middle Age in Europe with debt trading between merchants. However the first stock trading can be found in the 17th century with the creation of various companies to explore European colonies such as the Dutch East India Company. Historically stocks and bonds were traded in a physical place or building with traders gathering on the floor and exchanging financial titles by hand.

With permission of the London Stock Exchange the Nairobi Stock Exchange started its operations in 1954 as an overseas stock exchange when Kenya was a British colony and the business of shares trading was restricted only to the resident European community though Africans and Asians were not permitted to deal in securities In1963, after independence, Africans and Asians were permitted to deal in securities, but it was complicated to convince native Kenyans of the significance of the exchange.

In 1951, an Estate Agent Francis Drummond established the earliest professional Stock broking firm, and impressed upon the then finance minister of Kenya Sir Ernest Vasey the idea of creating a stock exchange in East Africa.

In1984, A Central Bank of Kenya study, "Development of Money and Capital Markets in Kenya" was known as a blueprint for structural reforms in the financial markets which helped the creation of a regulatory body 'The Capital Markets Authority' (CMA) in 1989.

The Capital Markets Authority Act was amended and known as the Capital Markets Act. In August 2000, CFC Financial Services the first licensed dealer on the Nairobi Stock Exchange started its operations.   
  
In February 2001, basic reformation of the capital market of Kenya took place and divided the market into four independent market segments: the Main Investments Market Segment (MIMS), the Alternative Investments Market Segment (AIMS), the Fixed Income Securities Market Segment (FISMS) and later Futures and Options Market Segment (FOMS).   
  
In the2001/2002 budget, the Government offered the extra incentives to capital markets investments. On17th April 2002, the CMA declared the sanction of the new NSE trading and settlement rules with amendments. On 26th July 2002, with the introducing of a New Foreign Investor Regulations, there are three categories of investor on the capital markets; local, East African and foreign.   
  
On 5th August 2002, the Nairobi Stock Exchange, the Capital Markets Authority of Kenya, the Association of Kenya Stockbrokers, the CMA Investor Compensation Fund, and 9 institutional investors through the Capital Markets Challenge Fund have signed a Shareholder Agreement for establishment of the Central Depository and Settlement Corporation (CDSC). On Monday, 11 September 2006 live trading on the automated trading systems of the Nairobi Stock Exchange was implemented.   
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**Major Companies listed in Nairobi Stock Exchange**   
  
Kakuzi Limited   
Sasini Tea and Coffee Limited   
Unilever Tea Limited  
Car and General Kenya Limited   
Kenya Airways  
TPS Serena   
CMC Holdings  
British American Tobacco Kenya   
British Oxygen Company (K) Ltd Kenya Oil   
  
Barclays Bank of Kenya   
Kenya Commercial Bank   
National Industrial Credit Bank   
Pan Africa Insurance Holdings   
Housing Finance  
CFC Bank   
Standard Chartered Bank   
Diamond Trust Bank of Kenya   
ICDC Investment Company   
National Bank of Kenya

**Functions of the Stock Exchange Market**

Although the stock exchange market has multiple functions, its main activities are two:

* To promote the savings and for them to be canalized towards of carrying through investment projects that otherwise wouldn’t   be possible you need that the issuing institution of the securities to be admitted for quoting. The negotiations will be done on the primary market.
* To provide liquidity to the investors. The investor can   recuperate the money invested when needed. For it, he has to go to the stock exchange market to sell the securities previously acquired. This function of the stock market is done on the secondary market.

Other functions of the stock exchange market as an organization are:

* To guarantee the legal and economic security of the agreed contracts.
* To provide official information about the quantities that are negotiated and of the quoted prices.
* To fix the prices of the securities according to the fundamental law of the offer and the demand.
* Specifying a bit more and centering on the two main agents that intervene in the market, investors and companies, we could do the following   classification:

Functions done by the stock exchange market in favor of the investor:

* It permits him the access to the profitable activities of the big companies.
* It offers liquidity to the security investments, through a place in which to sell or buy securities.
* It permits for the investor to have a political power in the companies in which he invests its savings due that the acquisition of ordinary shares gives him the right (among other things) to vote in the general shareholders meetings of the company in question.
* It offers the possibility of diversifying   your portfolio by enlarging the field of strategy of investments due to alternative options, as could be the derived market, the money market, etc.

With respect to the function done by the stock exchange market in favor of the companies:

* It supplies them with the obtaining of long-term funds that permits the company to make profitable activities or to do determine projects that otherwise wouldn’t be possible to develop for lack of financing. Also, this funding signifies a less cost than if obtained at other channels.
* The securities quoted at the stock exchange market usually have more fiscal purpose advantages for the companies.
* It offers to the company’s free publicity, which in other way would suppose considerable expenses. The institution is objecting of attention of the media (television, radio, etc.) in case any important change in its owners (the share holders).

**C. OTHER FINANCIAL INSTITUTIONS**

**Building Societies**

A building society is a financial institution, [owned by its members](http://en.wikipedia.org/wiki/Mutual_organization), that offers [banking](http://en.wikipedia.org/wiki/Banking_institution) and other [financial services](http://en.wikipedia.org/wiki/Financial_services), especially [mortgage lending](http://en.wikipedia.org/wiki/Mortgage_loan). Building Societies are licensed under the Building Societies Act. Currently there is no licensed Building Society in Kenya.

Credit Unions

These are co-op associations whose members normally have a common bond, such as employees of the same firm. Member’s savings are loaned out only to other members. They offer the cheapest source of funds for individual borrowers. Co-ops are regulated by the co-op act.

Pension funds

Refers to retirement plans funded by corporations or government agencies for their workers. They are administered primarily by the trust departments of commercial banks or by life insurance companies. These funds are invested primarily in bonds, stocks, mortgages, and real estate.

Life insurance companies

Take deposits in the form of annual premiums: invest these in stocks, bonds, real estate and mortgages, and finally make payments to the beneficiaries of the insured parties. They also offer a variety of tax deferred savings plans designed to provide benefits to participants when they retire.

Hedge funds

An aggressively managed portfolio of investments that uses advanced investment strategies such as leveraged, long, short and derivative positions in both domestic and international markets with the goal of generating high returns (either in an absolute sense or over a specified market benchmark).   
  
Legally, hedge funds are most often set up as private investment partnerships that are open to a limited number of investors and require a very large initial minimum investment. Investments in hedge funds are illiquid as they often require investors keep their money in the fund for at least one year. For the most part, hedge funds (unlike mutual funds) are unregulated because they cater to sophisticated investors. You can think of hedge funds as mutual funds for the super rich. They are similar to mutual funds in that investments are pooled and professionally managed, but differ in that the fund has far more flexibility in its investment strategies. It is important to note that hedging is actually the practice of attempting to reduce risk, but the goal of most hedge funds is to maximize return on investment. The name is mostly historical, as the first hedge funds tried to hedge against the downside risk of a bear market by shorting the market (mutual funds generally can't enter into short positions as one of their primary goals). Nowadays, hedge funds use dozens of different strategies, so it isn't accurate to say that hedge funds just "hedge risk". In fact, because hedge fund managers make speculative investments, these funds can carry more risk than the overall market.

**TOPIC 2 REGULATORY FRAMEWORK OF FINANCIAL INSTITUTIONS AND MARKETS**

**PURPOSE OF FINANCIAL SECTOR REGULATION**

1. Governments primarily regulate industries with a view to protecting consumers. This, for example, is why Governments regulate public utilities which may use monopoly positions to exploit consumers.
2. Related to the above (Protecting consumers), another argument for government regulation is based on the existence of destructive, ruinous, or cutthroat competition. This may drive out firms from the industry leading to monopolies that may exploit consumers.
3. In the financial sector, an additional motivation for regulation is maintaining financial stability, which is a clear public good. Asymmetric information can lead to widespread collapse of financial intermediaries, referred to as a financial panic. Because providers of funds to financial intermediaries may not be able to assess whether the institutions holding their funds are sound, if they have doubts about the overall health of financial intermediaries, they may want to pull their funds out of both sound and unsound institutions. The possible outcome is a financial panic that produces large losses for the public and causes serious damage to the economy.
4. Asymmetric information in financial markets means that investors may be subject to adverse selection and moral hazard problems that may hinder the efficient operation of financial markets. Risky firms or outright crooks/ criminals may be the most eager to sell bad securities to unwary investors, and the resulting adverse selection problem may keep investors out of financial markets. Furthermore, once an investor has bought a security, thereby lending money to a firm, the borrower may have incentives to engage in risky activities or to commit outright fraud. The presence of this moral hazard problem may also keep investors away from financial markets. Government regulation can reduce adverse selection and moral hazard problems in financial markets and increase their efficiency by increasing the amount of information available to investors.

**DRAWBACKS OF FINANCIAL SECTOR REGULATION**

1. Regulation may depress the returns (Profits) earned by financial institutions by increasing costs needed for compliance with the regulations. An example is the minimum capital requirements of Ksh. 1 billion for commercial banks.
2. Regulation may lead to an increase in prices i.e. the commissions, accounts ledger fees charged to consumers. Alternatively, the financial institutions may resort to cost cutting measures that lower the quality of service. All this will be in a bid to meet the costs of regulation.
3. It has been found that with tighter regulations, financial institutions tend to engage in riskier behavior. For example, they issue riskier loans in order to make an adequate return on capital for the investor.
4. The cost of the regulatory process (to the government) must be emphasized. If regulation is truly to serve the public interest, it must increase the efficiency of the entire social system. That is, its benefits must exceed its costs. Too often the net benefits of regulation are overestimated because of a failure to consider its costs.
5. Regulations may make members of the public (Consumers) develop a false sense of safety. Experience shows that regulations are not an absolute insurance against failure of institutions. The fact is those financial crises occur even when regulations and regulators are present. Regulators often react to crisis by packaging new regulations- which raises the question of whether they have the moral authority to do so.

To protect the public and the economy from financial panics, the governments implements several types of regulations.

* 1. Restrictions on Entry. The central bank, the IRA, as well as the other regulatory agencies, have created very tight regulations governing who is allowed to set up a financial intermediary. Individuals or groups that want to establish a financial intermediary, such as a bank, an MFI, SACCO or an insurance company, must obtain a licence from the state. Only if they are upstanding citizens with impeccable credentials and a large amount of initial funds will they be given the licence.
  2. Disclosure.There are stringent reporting requirements for financial intermediaries. Their bookkeeping must follow certain strict principles, their books are subject to periodic inspection, and they must make certain information available to the public.
  3. Deposit Insurance.The government can insure people’s deposits so that they do not suffer any financial loss if the financial intermediary that holds these deposits should fail. In Kenya, we have the deposits protection scheme.
  4. Restrictions on Asset Holdings and Bank Capital Requirements. Financial sector regulations that restrict financial institutions from holding risky assets such as common stock are a direct means of making such institutions avoid too much risk. Bank regulations also promote diversification, which reduces risk by limiting the amount of loans in particular categories or to individual borrowers. Requirements that financial institutions have sufficient capital are another way to change the bank’s incentives to take on less risk. When a bank is forced to hold a large amount of equity capital, the bank has more to lose if it fails and is thus more likely to pursue less risky activities.
  5. Assessment of Risk Management. Traditionally, on-site bank examinations have focused primarily on assessment of the quality of the bank’s balance sheet at a point in time and whether it complies with capital requirements and restrictions on asset holdings. Although the traditional focus is important for reducing excessive risk taking by banks, it is no longer felt to be adequate in today’s world, in which financial innovation has produced new markets and instruments that make it easy for banks and their employees to make huge bets easily and quickly. This change in the financial environment for banking institutions has resulted in a major shift in thinking about the bank supervisory process throughout the world. Bank examiners are now placing far greater emphasis on evaluating the soundness of a bank’s management processes with regard to controlling risk.

Financial sector supervision thus requires a more elabor00ate framework and tends to be more rigorous and intensive than is the case in other sectors.

**PRINCIPLES OF FINANCIAL SECTOR REGULATION**

**Clear Objectives –** The regulator should have a clear mandate set out in its enabling legislation. Regulation should ideally be only limited to correction of market failures and should not be a burden to the regulated institutions. Any developmental objectives requiring, for example, research and public education, should be clearly provided in the statutes

Pursuant to the Capital Markets Act, the CMA is responsible for the licensing, regulation and supervision of all capital markets participants. The CMA also disseminates rules and regulations within its jurisdiction, and is empowered to carry out enforcement and sanctions.

**Independence and Accountability -** Decisions by the regulator within its sub-sector should not be subject to undue influence from the Minister or any other parties. The principal officer and top management should have an element of security of tenure or at least clear rules governing their removal. Similarly, their recruitment should be done transparently and competitively and their remuneration should not be significantly discordant with that of senior officials in the regulated entities. Historical evidence shows that lack of independence of financial sector regulators worsens financial crises. For example, the lack of independence of financial supervisors in Japan’s Ministry of Finance weakened the financial sector and contributed to prolonged banking sector problems prompting the creation of an independent Financial Services Agency in the late nineties3. At the same time the regulator must be accountable and must report to the legislature through periodic reports including audited financial statements. In addition, there must be a mechanism for the regulator to be held accountable by the regulated industry while avoiding regulatory capture by the industry.

**Adequate Resources -** The regulator must have adequate funding, preferably through industry levy, so as to enable the industry have a role in checking the regulator’s spending. Adequate resources are a prerequisite to enable the regulator recruit, train and retain a cadre of experienced professional staff. In addition, the regulator requires resources for timely and effective data collection and processing.

**Effective Enforcement Powers –** The regulator must be able to take enforcement measures against all the players that it is required to regulate. These powers should include, inter allia, powers to:

• Require information to be provided;

• Assess probity of owners and managers of regulated entities;

• Inspect the operations of regulated entities;

• Intervene in operations of regulated entities including removal of managers;

• Revoke licenses or registration; and,

• Sanction entities or individuals.

Enforcement powers are best only set out broadly in legislation with regulations having powers to issue guidelines and directives. This allows flexibility and reduces the need for frequent cumbersome and time consuming legislative amendments. Staff of regulators should be protected from legal actions arising from their enforcement actions.

**Comprehensiveness of Regulation –** Regulation should clearly be comprehensive and not leave any unregulated areas, so called regulatory gaps. Activities should not be left unregulated due to lack of clarity as to which regulator is responsible. Also, this requires regulators to have some flexibility to respond to innovations which may result in new products which were not envisaged at the time of establishment of the regulatory structure.

**Cost-Efficient Regulation –** The direct cost of regulation in terms of levies and fees should clearly be reasonable and not an undue burden on the regulated institutions. This is clearly more important where, as is usually the case, these costs are ultimately passed on to the consumers. As indicated above, it is important for the amounts raised and how they are utilized to be transparently disclosed and accounted for to the industry and the legislature. In addition, there are indirect costs of compliance which must also be controlled to avoid undue burden on the industry. Indirect costs include costs of appointing service providers and experts, costs of having “compliance officers” within the organizations – including the now popular Head of Regulatory Affairs – as well as costs of installing systems to provide required reports and data to the regulator.

**Market Developments and Industry Structure -** Regulatory structure should mirror the sectors being regulated. Different countries have different industry structures and each country should seek to have a regulatory structure tailored to this other than attempting a one-size-fits-all structure or borrowing those in other countries. Presence of financial conglomerates, universal banking, bancassurance and other unified products lends the industry to a more unified regulatory framework than in the case of disaggregated sectors. When one financial institution is in several sectors facing different risks, there is a need for some mechanism to assess the overall risk facing the institution.

**There should be initial and ongoing capital and other prudential requirements for market intermediaries that reflect the risks that the intermediaries undertake.**

In kenya, there are regulations regarding the minimum capital requirements for financial institutions and insurance firms.

* General Insurance companies- Ksh. 300,000,000.00 by June 2010.
* Composite Insurance companies- Ksh. 450,000,000.00 by June 2010.
* Life insurance companies- Ksh. 150,000,000.00 by June 2010.
* Commercial banks/ mortgage finance institutions- Ksh. 1,000,000,000.00 by December 2012.

These minimum capital requirements are meant to ensure strong institutions and safeguard the interest of insurance policy holders and depositors.

**Accounting and auditing standards should be of a high and internationally acceptable quality.**

An assessment of the accounting and auditing environment in Kenya was conducted by the World Bank in 2001. The World Bank noted that Kenya had adopted International Accounting Standards, later renamed International Financial Reporting Standards (IFRSs) in 1998, thereby "closing the gap" between national and international accounting standards. The Institute of Certified Public Accountants of Kenya (ICPAK), in its 2005 self assessment prepared as part of the International Federation of Accountants' member body compliance program, points out that listed entities must prepare interim reports, have an Audit Committee, and comply with corporate governance rules. It is further required that the finance and accounting departments of listed companies be headed by a member of the ICPAK. The self-assessment adds that statutory auditors are appointed by the shareholders. In 2006, the UNCTAD issued a report, which stresses that all listed companies in Kenya prepare accounts in accordance with IFRSs. In practice, however, the level of non-compliance is quite high. The UNCTAD goes on to note that Kenya's adherence to IFRSs has not been achieved.

**Regulation should require disclosure,** as set forth under the principles for issuers, which is necessary to evaluate the suitability of a collective investment scheme for a particular investor and the value of the investor’s interest in the scheme.

**There should be ongoing regulatory supervision of exchanges and trading systems** which should aim to ensure that the integrity of trading is maintained through fair and equitable rules that strike an appropriate balance between the demands of different market participants.

**APPROACHES TO REGULATION OF THE FINANCIAL SECTOR**

There are two approaches to regulation of the financial sector:

1. Institutional approach

In this approach the view is that firms fall within a particular regulator if they carry a particular label. Here the legal status of an institution determines its regulatory supervision, e.g. an organization registered under the banking act will be regulated by the regulator concerned regardless of the other businesses it may be involved in.

1. Functional approach

Here, financial institutions are regulated depending on the type of business they undertake. Consequently, a firm may fall under different regulators depending on the lines of business it is in.

**EXISTING FINANCIAL SECTOR REGULATORY FRAMEWORK IN KENYA**

The existing regulatory framework for the financial sector in Kenya consists of a number of independent regulators each charged with the supervision of their particular sub sectors. The recent creation of the Insurance Regulatory Authority has completed the shift from having departments under the Ministry of Finance to having independent regulators for each sub-sector.

The current regulatory structure is characterized by regulatory gaps, regulatory overlaps, multiplicity of regulators, inconsistency of regulations and differences in operational standards. For example, some of the regulators have at least partial exemption from the State Corporations Act while others do not, some have tax exemption, others do not. Some regulators have powers to issue regulations while in other cases the power is retained by the Minister for Finance.

**STRUCTURE OF FINANCIAL SECTOR REGULATION IN KENYA**

**SACCO SOCIETIES REGULATORY AUTHORITY (SASRA)**

The Sacco Societies Regulatory Authority (SASRA) is established under the Sacco Societies Act of 2008 with the following mandate:

* License Sacco Societies to carry out deposit taking business;
* Regulate and supervise deposit taking Sacco Societies;
* Manage the Deposit Guarantee Fund under the trustees appointed under the Act;
* Advise the minister on national policy on deposit taking Sacco Societies in Kenya. (Refer <www.sasra.go.ke>)

**THE GAPS IN THE REGULATORY FRAMEWORK**

**The Kenya Post Office Savings Bank (KPOSB)**

The Kenya Post Office Savings Bank (KPOSB) was incorporated in 1978 under the KPOSB Act (Cap 493B). The mission of the bank is “to sustainably provide savings and other financial services to our customers, through a countrywide branch network, by use of modern technology in delivery of efficient and effective customer service, and to the satisfaction of all stakeholders.”

Section 8(1) KPOSB Act that provided for the Government guarantee over the deposits placed with the savings bank was repealed via the Finance Bill 2001. The repeal of the section implies that new avenues should be found for deposit protection. It also implies that the bank should be adequately capitalised as a first step to protect deposits against possible losses.

**Companies Act (CAP 486)**

The Companies Act, which is a holdover of pre-colonial British Law, is creating problems for private sector activities in Kenya and indeed the financial services sector. Old-fashioned UK companies’ law, currently in use, is complicated, cumbersome, inconsistent and at odds with modern “enabling” regulation of corporations. Another layer of complexity and compliance is added to an already burdensome structure, leading to multiple disclosure

requirements, overlap and expensive duplication. The regulation of companies is currently under the Registrar of Companies in the Office of the Attorney General but could be brought under the financial sector regulatory framework for more responsiveness to market dynamism.

**Development Finance Institutions (DFIs)**

DFIs have always provided the impetus for economic development be it in the developed or developing countries. In Kenya, DFIs were specifically established to spearhead the development process by:

Availing credit funds to those venturing into commerce, tourism and industry.

• Assisting those wishing to venture into small-scale manufacturing enterprises.

• Assisting in the initiation and expansion of small, medium and large-scale industrial and tourist undertakings.

• Provide long-term lending (Project financing) to sustain economic development

• Provide Technical Assistance/Co-operation extension services

• Provision of special Financing and Support services to stimulate Private Sector to live up to its potential and create jobs and wealth, develop and expand indigenous skills

The existing framework has potential for disharmony as they fall under different regulators. For example ICDC/KIE are under the Ministry of Trade and Industry, IDB is under the Central Bank of Kenya and AFC the Ministry of Agriculture.

**Premium and Other Financing**

A number of premium finance companies have evolved in the Kenyan market. These companies offer financing to companies and individuals to meet insurance premium payments. This is clearly a financial service but is currently not regulated by any of the existing regulatory institutions. Similarly, there are other money lenders and financers who are totally unregulated. There is also need for regulation of leasing which is a developing financial service.

**E- Banking and Mobile banking**

The advent of electronic banking has raised new concerns for banking regulation, specifically about security and privacy

A number of banks also operate e- banking solutions where a customer may access his/ her account through the internet.

Worries about the security of electronic banking and e-money are an important barrier to their increased use. With electronic banking, you might worry that criminals might access your bank account and steal your money by moving your balances to someone else’s account. Indeed, a notorious case of this happened in 1995, when a Russian computer programmer got access to Citibank’s (USA) computers and moved funds electronically into his and his conspirators’ accounts. Private solutions to deal with this problem have arisen with the development of more secure encryption technologies to prevent this kind of fraud. However, because bank customers are not knowledgeable about computer security issues, there is a role for the government to regulate electronic banking to make sure that encryption procedures are adequate. Similar encryption issues apply to e-money, so requirements that banks make it difficult for criminals to engage in digital counterfeiting make sense.

Electronic banking also raises serious privacy concerns. Because electronic transactions can be stored on databases, banks are able to collect a huge amount of information about their customers—their assets, creditworthiness, what they purchase, and so on—that can be sold to other financial institutions and businesses. This potential invasion of our privacy rightfully raises customer concerns.

**Problems in Regulating International Banking**

Particular problems in bank regulation occur when banks are engaged in internationalbanking and thus can readily shift their business from one country to another. Bankregulators closely examine the domestic operations of banks in their country, but theyoften do not have the knowledge or ability to keep a close watch on bank operationsin other countries, either by domestic banks’ foreign affiliates or by foreign banks withdomestic branches. In addition, when a bank operates in many countries, it is notalways clear which national regulatory authority should have primary responsibilityfor keeping the bank from engaging in overly risky activities.

The difficulties inherent in regulating international banking were highlighted by the collapse of the Bank of Credit and Commerce International (BCCI). BCCI, which was operating in more than 70 countries, including the United States and the United Kingdom, was supervised by Luxembourg, a tiny country unlikely to be up to the task. When massive fraud was discovered, the Bank of England closed BCCI down, but not before depositors and stockholders were exposed to huge losses.

Cooperation among regulators in different countries and standardization of regulatory requirements provide potential solutions to the problems of regulating international banking. The world has been moving in this direction through agreements like the Basel Accords and oversight procedures announced by the Basel Committee in July 1992, which require a bank’s worldwide operations to be under the scrutiny of a single home-country regulator with enhanced powers to acquire information on the bank’s activities.

**INTERNATIONAL EXPERIENCE**

**COUNTRY SUMMARIES**

There is no one single optimal model for the organisational structure of financial regulation. The prevailing circumstances, historical factors and comparative advantages in any given country determine the structure of the integration. It follows therefore, that even if countries have much to learn from each other, different countries adopt different integration approaches.

**United Kingdom**

Financial Services Authority (FSA) in the UK evolved after an intense debate by the Bank of England and London financial market. The former had a developed supervisory capacity and the latter a well governed market. This led to the creation of the FSA on the basis of conduct of business rather than on prudential aspects. The FSA objectives include reducing financial crime: money laundering; fraud and dishonesty; and criminal market misconduct such as insider dealing, securing the right degree of protection for consumers, and vetting at entry aims to allow only those firms and individuals satisfying the necessary criteria (including honesty, competence and financial soundness) to engage in regulated activity. Once authorized, firms and individuals are expected to maintain particular standards set by FSA and promote public understanding of the financial sector. FSA helps people gain the knowledge, aptitude and skills they need to become informed consumers, so that they can

manage their financial affairs more effectively. Despite the creation of the FSA, pension regulation remained under a separate entity The Occupational Pensions Regulatory Authority, which in 2006 was reformed into The Pensions Regulator. Mortgage advisors and insurance brokers were included in the scope of the FSA at a later stage. Currently, the FSA has been under criticism as being too unwieldy and unresponsive to needs of particular sectors.

**Australia**

Australia established a prudential regulatory agency – Australian Prudential Regulatory Authority (APRA) and a separate market integrity and consumer protection agency, the Australia Securities and Investment Commission (ASIC). APRA regulates all deposit taking institutions (banks), life and general insurance companies, superannuation funds other than self managed superannuation funds (which are regulated by the Australian Taxation Office) and retirement savings. APRA is accountable to an independent board. APRA operates under a charter that ensures financial safety objectives of prudential regulation are balanced with efficiency, competition and contestability considerations. APRA is enthroned with power to legislate all the above institutions in a manner that will meet the set objectives, to make standards of prudential matters in relation to all the above institutions, initiate wind up or appoint administrators to troubled institutions in order to prevent further losses from accruing. A bulk of the staff of APRA was drawn from the Insurance, superannuation commission and the bank supervision of the Reserve Bank. APRA is funded by levies paid by the regulated institutions and charges for certain services. The levies are based on a percentage of assets held by the entity, subject to minimum and maximum levy amounts.

**Mauritius**

The establishment Financial Service Commission – the integrated financial services regulator – was established based on the recommendations of the Committee on Financial Services Regulation in 2001. Integration of the financial services was to be done in two phases. The First phase set up a new Financial Services Commission (FSC) to regulate and supervise the entire financial activities environment save for the banking sector, which was under the supervision of the Bank of Mauritius. The second phase entailed the integration of the FSC and the banking sector to finally achieve a fully integrated supervisory structure. The underlying objective to be achieved through integration in Mauritius was consumer protection. The Financial Services Commission, which was established under the Financial Services Development Act, strongly set out to suppress dishonourable and improper practices, market abuses, set guidelines on conduct of business, promote public understanding of the financial sector and set up of a recourse mechanism for channeling and investigating public complaints.

**CASE FOR CONSOLIDATED FINANCIAL SECTOR REGULATION**

**Market developments**

The need for the structure of regulation to mirror the structure of the industry is one of the most compelling arguments for consolidation. If the regulators entities are conglomerates covering banking, insurance, securities and pension then it is difficult for a regulator for a particular sub-sector to draw a view of the overall risks facing the entity. A consolidated regulator on the other hand would be able to understand and monitor risks across the sub sectors and develop policies to address the risks facing the entire financial sector.

**Economies of scale and cost reduction**

Another popular argument for consolidation arises from the cost efficiency gains that can be obtained by consolidating multiple regulators into a single body. Clearly a consolidated regulator will only have one set of service departments such as administration, finance and human resources hence reducing on staff and other overhead costs. Indeed, even core departments like legal, research, and public awareness can be unified into a single department in the new consolidated regulator leading to significant cost savings. Where there are overlaps in registration and licensing then consolidation will also bring cost reductions and efficiency gains by allowing regulated entities to have a one-stop licensing procedure as opposed to multiple registrations. These gains are maximised where regulation is consolidated by function as in the case of Australia as opposed to consolidation by institutions as in South Africa.

**Reduce regulatory arbitrage**

Where there are regulatory overlaps, as is the case in Kenya, then having multiple regulators can allow regulated entities to engage in regulatory arbitrage. This is where entities opt to register products in those sub-sectors where regulations are weakest or most cost efficient.

**Strengthen accountability**

Regulatory gaps often lead to regulators “washing their hands” of certain sub-sectors especially when things go wrong. Blame may be passed from one regulator to another when supervisory failure occurs. In Kenya, we have seen different regulators disavowing blame for an instrument that never came to market with no one ready to accept that they were the ones who had refused to approve the instrument. A consolidated financial regulator would be responsible for supervising all entities and products in the financial sector and would be duly held accountable.

**CASE AGAINST CONSOLIDATED FINANCIAL SECTOR REGULATION**

**Reduced effectiveness**

Large consolidated regulators are often criticised for becoming “Bureaucratic Leviathans.”That is, the regulator becomes so big and powerful that it is divorced from the industry it is supposed to be regulating. A consolidated regulator is likely to have a diversity of objectives and striking the appropriate balance between these may be difficult. Indeed, the different objectives may clash forcing the regulator to have to choose between policies many of which may favour one sub-sector over the others.

**Loss of focus**

Consolidation may undermine overall effectiveness of supervision if the unique characteristics of the sub sectors are not recognized. Operations may become so broad based that they deny managers a chance to understand specific sub-sectors. In developing countries where some sub-sectors are less developed than others then there is a danger of regulation of the dominant sector - usually banking - overriding the others resulting in the smaller sub-sectors, which may require more flexibility, not getting the attention they require to develop. Indeed where multiple regulators are merged but one pre-merger regulator dominates in terms of size and staffing it may subsume the other regulators at the expense of focus paid to those sub-sectors.

**Diseconomies of scale**

A consolidated regulator is effectively a regulatory monopoly which may give rise to inefficiencies and sub-optimal resource allocation associated with monopolies. There may be merit in having a degree of competition between regulators as this enables learning from each other and striving to out-perform the others.

**Moral hazards**

There is a compelling argument that a consolidated regulated framework gives consumers a false impression that all financial instruments have similar risks. When banks and securities are regulated by the same regulator consumers may fail to differentiate the very different risks in these two markets. Similarly, all institutions licensed by the regulator may be assumed by the public to be receiving equal protection. Yet, whereas bank depositors may be protected by the Deposit Protection Fund, this is not the case for the other sub-sectors.

**CASE: WORLD BANK CALLS FOR TIGHTER MOBILE CASH TRANSFER REGULATIONS**

The World Bank has called for Central Bank regulation of telecommunication companies offering money transfer and mobile banking services — a move that could raise customer charges owing to increased compliance costs.

While recognizing that mobile technology offers a chance for an estimated three billion low income earners to get access to financial services, the bank says that the line differentiating financial providers in the banking, telecom, credit card and mobile commerce has become increasingly blurred, yet no robust regulations to guard against money laundering have been passed.

“Distinctive risks concern observers in affected service markets,” said the World Bank. “These perceptions merit urgent attention because mobile financial service providers may fall outside anti-money laundering and combating the financing of terrorism controls generally adhered to by traditional financial institutions,” added the institution in a presentation made at a Citi Bank organized mobile money policy forum in Nairobi last month.

The bank says regulators and players in the industry need to identify perceived risks to avoid formulating laws that will put the sector into the trap of over-regulation.

“Non-bank providers of financial services, such as telcos should be considered as ‘Financial Institutions,’ as defined by the Financial Action Task Force (FATF).”

FATF is an inter-governmental body whose purpose is the development and promotion of national and international policies to combat money laundering and terrorism financing.

The Central Bank of Kenya (CBK) did not respond to our request for comment.

Speaking on Monday during the launch of a new internet based mobile money transfer system, CBK governor Prof Njuguna Ndung’u said the regulator “will continue to work with the ministry of finance and the financial sector regulators to promote a sound, safe, efficient and inclusive financial system with no room for regulatory arbitrage.”

Kenya is seen as a pioneer in the mobile phone money transfer services since its launch of M-Pesa in 2007. All the four mobile phone service firms currently offer money transfer services, moving an average of Sh76 billion every month, and creating jobs for an estimated 39,449 agents as per CBK’s data.

“This reflects the fact that when cost of transactions decline, transactions increase in volume,” said Prof Ndung’u.

Under the World Bank proposal, mobile service providers would be put under two regulators, CBK and their present regulator, the Communications Commission of Kenya (CCK).

Although mobile service providers that offer money transfer service are currently subject to some level of regulation by the CBK, giving them financial institution status would increase their reporting compliance requirements.

“It is not necessary (considering mobile phone operators as financial institutions) because it is not our core business. We’re not a bank,” said Angela Ng’ang’a-Mumo, head of corporate communications at Telkom Kenya.

Ms Mumo said Telkom’s Orange money, which is run in partnership with Equity Bank, is already regulated by the CBK since it uses a banking platform.

***(Courtesy of the Business Daily, January 26, 2010: A publication of the Nation Media Group)***

**TOPIC 3: FINANCIAL MARKET INSTRUMENTS**

**Organization of the Securities Market**

We can differentiate between the following types of markets:

* **Direct search market**

This is the least organized market. Buyers and sellers must seek each other directly. Such markets are characterised by sporadic participation and low priced, non-standard goods.

* **Brokered market**

In this market, trading in goods is active. Brokers find it profitable to offer search services to buyers and sellers e.g. the real estate market.

* **Dealer market**

This is a market where traders specialize in particular assets, buy and sell for their own account. The spread between the dealer buying price and the sale price are the source of profit. The over-the-counter (OTC) market includes trading in all stocks not listed on one of the exchanges. It can also include trading in listed stocks, which is referred to as the third market. The term third market describes OTC trading of shares listed on an exchange. The OTC market is not a formal organization with membership requirements or a specific list of stocks deemed eligible for trading.

**Auction market**

In an auction market, traders converge at one place to buy and sell assets. The advantage of this market over dealer markets is that one nee d not search across dealers to find the best price for an asset.

* **Primary markets**

This is where new securities are sold.

* **Secondary markets,**

This is where outstanding securities (those already issued in a primary market) are bought and sold.

* **Call versus Continuous Markets**

Beyond the alternative trading systems for equities, the operation of exchanges can differ in terms of when and how the stocks are traded. In call markets, trading for individual stocks takes place at specified times. The intent is to gather all the bids and asks for the stock and attempt to arrive at a single price where the quantity demanded is as close as possible to the quantity supplied. Call markets are generally used during the early stages of development of an exchange when there are few stocks listed or a small number of active investors/traders.

In a continuous market, trades occur at any time the market is open. Stocks in this continuous market are priced either by auction or by dealers. If it is a dealer market, dealers are willing to make a market in the stock, which means that they are willing to buy or sell for their own account at a specified bid and ask price. If it is an auction market, enough buyers and sellers are trading to allow the market to be continuous; that is, when you come to buy stock, there is investor available and willing to sell stock.

**Money market instruments**

Because of their short terms to maturity, the debt instruments traded in the money market undergo the least price fluctuations and so are the least risky investments.

* **Treasury bills**

These short-term debt instruments of the government are issued in 3-, 6- month maturities to finance the government. T-bills are also the safest of all money market instruments, because there is almost no possibility of *default*, a situation in which the party issuing the debt instrument (in this case, the government) is unable to make interest payments or pay off the amount owed when the instrument matures. The government is always able to meet its debt obligations, because it can raise taxes or issue *currency* (paper money or coins) to pay off its debts. Treasury bills are held mainly by banks, although small amounts are held by households, corporations, and other financial intermediaries.

* **Negotiable Bank Certificates of Deposit (CDs)**

A *certificate of deposit (CD)* is a debt instrument, sold by a bank to depositors, that pays annual interest of a given amount and at maturity, pays back the original purchase price. Before 1961, CDs were nonnegotiable; That is, they could not be sold to someone else and could not be redeemed from the bank before maturity without paying a substantial penalty. In 1961, to make CDs more liquid and more attractive to investors, Citibank (USA) introduced the first negotiable CD in large denominations that could be resold in a secondary market. This instrument is now issued by almost all the major commercial banks and has been extremely successful.

* **Commercial Paper**

*Commercial paper* is a short-term debt instrument issued by large banks and well-known corporations, such as EABL and Safaricom. Before their growth in popularity in the 1960s, corporations usually borrowed their short-term funds from banks, but since then they have come to rely more heavily on selling commercial paper to other financial intermediaries and corporations for their immediate borrowing needs; in other words, they engage in *direct finance*.

* **Bankers Acceptances**

These money market instruments are created in the course of carrying out international trade and have been in use for hundreds of years. A banker’s acceptance is a bank draft (a promise of payment similar to a check) issued by a firm, payable at some future date, and guaranteed for a fee by the bank that stamps it “accepted.” The firm issuing the instrument is required to deposit the required funds into its account to cover the draft. If the firm fails to do so, the bank’s guarantee means that it is obligated to make good on the draft. The advantage to the firm is that the draft is more likely to be accepted when purchasing goods abroad, because the foreign exporter knows that even if the company purchasing the goods goes bankrupt, the bank draft will still be paid off. These “accepted” drafts are often resold in a secondary market at a discount and are therefore similar in function to Treasury bills.

* **Repurchase Agreements (Repos)**

Repurchase agreements, or repos, are effectively short-term loans (usually with a maturity of less than two weeks) in which Treasury bills serve as collateral, an asset that the lender receives if the borrower does not pay back the loan. Repos are made as follows: A large corporation, such as EABL, may have some idle funds in its bank account, say Ksh. 1 million, which it would like to lend for a week. EABL uses this excess Ksh. 1 million to buy Treasury bills from a bank, which agrees to repurchase them the following week at a price slightly above EABL’s purchase price. The effect of this agreement is that EABL makes a loan of Ksh.1 million to the bank and holds Ksh. 1 million of the bank’s Treasury bills until the bank repurchases the bills to pay off the loan. Repurchase agreements are a fairly recent innovation in financial markets. They are now an important source of bank funds

**Capital Market Instruments**

*Capital market instruments* are debt and equity instruments with maturities of greater than one year. They have far wider price fluctuations than money market instruments and are considered to be fairly risky investments.

* **Stocks**

Stocks are equity claims on the net income and assets of a corporation.

* **Mortgages**

*Mortgages* are loans to households or firms to purchase housing, land, or other real structures, where the structure or land serves as collateral for the loans. Savings and loan associations (e.g. the KCB owned S & L), mortgage finance institutions (e.g. Housing Finance) and commercial banks have been the primary lenders in the residential mortgage market loans.

In the United States of America, the government plays an active role in the mortgage market via the three government agencies—the Federal National Mortgage Association (FNMA, “Fannie Mae”), the Government National Mortgage Association (GNMA, “Genie Mae”), and the Federal Home Loan Mortgage Corporation (FHLMC, “Freddie Mac”)—that provide funds to the mortgage market by selling bonds and using the proceeds to buy mortgages. An important development in the residential mortgage market in recent years is the mortgage-backed security. The global financial crisis of 2008-09 has been traced to defaults by borrowers in these mortgage companies.

*Mortgage-Backed Securities*

A major change in the residential mortgage market in recent years has been the creation of an active secondary market for mortgages. Because mortgages have different terms and interest rates, they were not sufficiently liquid to trade as securities on secondary markets. To stimulate mortgage lending, in 1970 the Government National Mortgage Association (GNMA, called “Genie Mae”) developed the concept of a pass-through *mortgage-backed security* when it began a program in which it guaranteed interest and principal payments on bundles of standardized mortgages. Under this program, private financial institutions such as savings and loans and commercial banks were now able to gather a group of GNMA-guaranteed mortgages into a bundle of, say, Ksh.1 million and then sell this bundle as a security to a third party (usually a large institutional investor such as a pension fund). When individuals make their mortgage payments on the GNMA-guaranteed mortgage to the financial institution, the financial institution passes the payments through to the owner of the security by sending a check for the total of all the payments. Because GNMA guarantees the payments, these pass-through securities have a very low default risk and are very popular, with amounts outstanding exceeding Ksh.500 billion.

Mortgage-backed securities are issued not only by the government agencies, but also by private financial institutions. Indeed, mortgage-backed securities have been so successful that they have completely transformed the residential mortgage market. Throughout the 1970s, over 80% of residential mortgages in the USA were owned outright by savings and loans, mutual savings banks, and commercial banks. Now only one-third are owned outright by these institutions, with two thirds held as mortgage-backed securities.

In Kenya, the mortgage backed securities market is not well developed, as most mortgages are still owned by the originating institutions.

* **Corporate Bonds**

These are long-term bonds issued by corporations with very strong credit ratings. The typical *corporate bond* sends the holder an interest payment twice a year and pays off the face value when the bond matures. Some corporate bonds, called *convertible bonds*, have the additional feature of allowing the holder to convert them into a specified number of shares of stock at any time up to the maturity date. This feature makes these convertible bonds more desirable to prospective purchasers than bonds without it, and allows the corporation to reduce its interest payments, because these bonds can increase in value if the price of the stock appreciates sufficiently. Because the outstanding amount of both convertible and nonconvertible bonds for any given corporation is small, they are not nearly as liquid as other securities such as government bonds. The principal buyers of corporate bonds are life insurance companies; pension funds and households are other large holders.

There are different types of bonds:

* **Mortgage bonds** are backed by real assets pledged as security.
* **Debentures** are not backed by any security.
* **Subordinate bonds** can only be paid after senior obligations are satisfied.
* **Convertible bonds** offer the investor the option to convert bonds to shares of the firm's equity.
* **Income bonds** are so named because interest payments are only made if the company generates sufficient income.
* **Zero coupon bonds** pay no coupons (interest), and their return is purely from purchasing at a discount.
* **Floating rate bonds** are so named because the coupon rate is tied to some basic rate such as Treasury-bill rates. These provide protection against inflation and interest rate risk and keep bonds selling close to their par values.
* **Puttable bonds** offer the option of returning the bonds at face value. Most bonds will contain a deferment period, a period in the early life of the bond when it cannot be recalled.
* **Junk bonds** are high risk, high return bonds. Typically, these are issued by lower-rated entities and are often tied to mergers or leveraged buyouts.

Corporate bonds could either be floating rate or fixed rate. Floating rate bonds have coupons that can be varied depending on some predetermined rate of interest, mostly the t-bill rate. Fixed rate bonds have a fixed coupon rate.

Bond features and prices

A bond is an interest only loan issued by the government (Treasury bond) or by corporations (Corporate bonds). The regular interest payments that the bond issuer promises to make are called **coupons**. The amount that will be repaid at the end of the loan is called the **par value** or the **face value**. The annual coupon divided by the face/ par value of a bond is called the **coupon rate**. The number of years till the face value is paid is the bond’s **term to maturity**.

To calculate the value of a bond, we need to know the remaining time to maturity, the face value, the coupon, and the **market interest rate** for bonds with similar features. This market interest rate (the interest rate required in the market) is called the **yield to maturity (YTM)** or **simply the yield**. It is the rate of return that equates the present value of the cash flows to be expected from a bond to its market value. This is covered in detail in the chapter on interest rates. The **bond indenture** is the bond agreement between the issuer and the buyer.

Example 1: Valuing bonds

ABC LTD has issued a Ksh. 100 bond with 10 years to maturity. The bond has an annual coupon of 8%. Similar bonds have a YTM of 8%. Assume interest is payable only once a year. Represent the expected cash flows from the bond on a number line (Year 0 to 10). What is the value of this bond?

The value of the bond is:

Po= 8 \* PVIAF (8%, 10 years) + 100 \* PVIF (8%, 10 years) = Ksh. 100.00. What conclusion can you reach from this result? You observe that when the required rate of return in the market (YTM) is equal to the coupon rate, the value of the band equals its par value.

Calculate the value of the bond at a YTM of 6%, and 10%. What do you conclude from the results?

Suppose a year has passed (that is, the time to maturity is 9 years), what is the value of the bond when the YTM for similar bonds is:

1. 8%

ii. 10%

At 8%, you should get a value of Ksh. 88.50. Since the bond will be selling at lower than its par value of Ksh. 100, it is a **discount bond.** The opposite of a discount bond is a **premium bond**.

Semi-annual coupons

In reality, most bonds pay coupons on a semi- annual basis. For example, a Ksh. 100 bond that has a coupon of 14% will give the holder a coupon of Ksh. 14 per annum, but in two installments of Ksh. 7 each per bond. What would be the value of such if the YTM for similar bonds in the market is 16% and the time to maturity is seven years? What is the effective rate?

Solution

Coupons: 14% \* 100 = Ksh. 14, payable Ksh. 7 in June, and Ksh. In December. We shall work with the Ksh. 7.

YTM for similar bonds= 16% per annum, that is 8% per half year. We shall work with 8%.

Time to maturity is 7 year, or 14 half years. We shall work with 14.

Po= 7 \* PVIAF (14, 8%) + 100 \* PVIF (14, 8%) = Ksh. 91.76. this is a discount bond.

The effective annual rate is = =?

We are squaring since coupons are being paid twice a year. If coupons are paid four times per year, we would raise to power 4, and so on.

Bond markets

Bonds may trade at a formal exchange such as the NSE or over the counter (OTC). In an OTC, transactions are negotiated privately and there is little or no central reporting of transactions. Please refer to the class illustrations for examples of the bonds traded at the NSE.

Bond price reporting in Kenya

Refer to classroom discussion on this.

Note about bond price quotes

If you buy a bond between coupon payments, the amount you will pay will be greater than the quoted price. In bond markets, prices are quoted net of accrued interest, that is accrued interest is deducted to arrive at the quoted price. The quoted price is also known as the **clean price**. The price you pay, however, includes accrued interest and is called the **dirty** or **full** or **invoice** price.

* **Treasury Bonds**

These long-term debt instruments are issued by the Central bank of Kenya to finance the deficits of the government. Long-term debt instruments issued by state and local governments to finance expenditures on schools, roads, and other large programs are referred to as *Infrastructure bonds*, and are increasingly being used by the government to raise funds for large projects.

* **Local Government Bonds**

Local Government bonds, also called *municipal bonds*, are long-term debt instruments issued by the local governments (City Council, Municipal Councils, and County Governments) to finance expenditures on large social projects and bridge budget deficits. For example, the Nairobi City Council is planning to float a Ksh. 10 billion municipal bond to upgrade infrastructure in the city.

* **Consumer and Bank Commercial Loans**

These are loans to consumers and businesses made principally by banks, but—in the case of consumer loans—also by Hire Purchase companies and credit unions. There are often no secondary markets in these loans, which makes them the least liquid of the capital market instruments.

**Derivative securities**

Financial derivatives are so effective in reducing risk because they enable financial institutions to **hedge**; that is, engage in a financial transaction that reduces or eliminates risk. When a financial institution has bought an asset, it is said to have taken a **long position**, and this exposes the institution to risk if the returns on the asset are uncertain. On the other hand, if it has sold an asset that it has agreed to deliver to another party at a future date, it is said to have taken a **short position**, and this can also expose the institution to risk. Financial derivatives can be used to reduce risk by invoking the following basic principle of hedging: ***Hedging risk involves engaging in*** ***a financial transaction that offsets a long position by taking an additional short*** ***position, or offsets a short position by taking an additional long position***.

Equity-derivative securities are securities that have a claim on the common stock of a firm. This would include:

* **Options**

This refers to rights (but not obligation) to buy or sell common stock at a specified price for a stated period of time. The two kinds of option instruments are

(1) Warrants and

(2) Puts and calls.

*Warrants*

A warrant is an option issued by a corporation that gives the holder the right to acquire a firm’s common stock from the company at a specified price within a designated time period. The warrant does not constitute ownership of the stock, only the option to buy the stock.

*Puts and Calls*

A call option is similar to a warrant because it is an option to buy the common stock of a company within a certain period at a specified price called the striking price. A call option differs from a warrant because it is not issued by the company but by another investor who is willing to assume the other side of the transaction. Options also are typically valid for a shorter time period than warrants. The holder of a put option has the right to sell a given stock at a specified price during a designated time period. Puts are useful to investors who expect a stock price to decline during the specified period or to investors who own the stock and want protection from a price decline.

* **Forward and Futures Contracts**

Forward contracts are negotiated in the over-the-counter market. This means that forward contracts are agreements between two private parties—one of which is often a derivatives intermediary, such as a commercial or an investment bank—rather than traded through a formal security or commodity exchange. One advantage of this private arrangement is that the terms of the contract are completely flexible; they can be whatever any two mutually consenting counterparties agree to. Another desirable feature to many counterparties is that these arrangements may not require *collateral;* instead, the long and short positions sometimes trust each other to honor their respective commitments at Date *T.* This lack of collateral means that forward contracts involve *credit* (or *default*) *risk,* which is one reason why commercial banks are often market makers in these instruments.

One disadvantage of a forward contract is that it is quite often *illiquid,* meaning that it might be difficult or costly for a counterparty to exit the contract before it matures. Illiquidity is really a by-product of the contract’s flexibility because the more specifically tailored an agreement is to the needs of a particular individual, the less marketable it will be to someone else. Futures contractssolve this problem by standardizing the terms of the agreement (e.g., expiration date, identity and amount of the underlying asset) to the extent that it can be exchange traded. In contrast to the forward market, both parties in a futures contract trade through a centralized market, called a *futures exchange.* Although the standardization of contracts reduces the ability of the ultimate end users to select the most desirable terms, it does create contract *homogeneity,* whereby the counterparties can always *unwind* a previous commitment prior to expiration by simply trading their existing position back to the exchange at the prevailing market price.

**INVESTMENT COMPANIES AND MUTUAL FUNDS**

The investment alternatives described so far are individual securities that can be acquired from a government entity, a corporation, or another individual. However, rather than directly buying an individual stock or bond issued by one of these sources, you may choose to acquire these investments indirectly by buying shares in an investment company, also called a mutual fund, that owns a portfolio of individual stocks, bonds, or a combination of the two. Specifically, an investment company sells shares in itself and uses the proceeds of this sale to acquire bonds, stocks, or other investment instruments. As a result, an investor who acquires shares in an investment company is a partial owner of the investment company’s portfolio of stocks or bonds. We will distinguish investment companies by the types of investment instruments they acquire.

* **Money Market Funds**

Money market funds are investment companies that acquire high quality, short-term investments (referred to as money market instruments), such as T-bills, high grade commercial paper (public short-term loans) from various corporations, and large CDs from the major banks.

Individuals tend to use money market funds as alternatives to bank savings accounts because they are generally quite safe (although they are not insured, they typically limit their investments to high-quality, short-term investments), they provide yields above what is available on most savings accounts, and the funds are readily available.

* **Bond (Fixed Income Securities) Funds**

Bond funds generally invest in various long-term government, corporate, or municipal bonds. They differ by the type and quality of the bonds included in the portfolio as assessed by various rating services. Specifically, the bond funds range from those that invest only in risk-free government bonds and high-grade corporate bonds to those that concentrate in lower rated corporate or municipal bonds, called high-yield bonds or junk bonds. The expected rate of return from various bond funds will differ, with the low-risk government bond funds paying the lowest returns and the high-yield bond funds expected to pay the highest returns.

* **Common Stock (Equity) Funds**

Numerous common stock funds invest to achieve stated investment objectives, which can include aggressive growth, income, precious metal investments, and international stocks. Such funds offer smaller investors the benefits of diversification and professional management.

* **Balanced Funds**

Balanced funds invest in a combination of bonds and stocks of various sorts depending on their stated objectives.

* **Index Funds**

Index funds are mutual funds created to equal the performance of a market index like the NSE 20 or the ASE. Such funds appeal to passive investors who want to simply experience returns equal to some market index either because they do not want to try to “beat the market” or they believe in efficient markets and do not think it is possible to do better than the market in the long run.

**REAL ESTATE**

Like commodities, most investors view real estate as an interesting and profitable investment alternative but believe that it is only available to a small group of experts with a lot of capital to invest. In reality, some feasible real estate investments require no detailed expertise or large capital commitments. Below are some low-capital alternatives.

* **Real Estate Investment Trusts (REITS)**

A real estate investment trust is an investment fund designed to invest in various real estate properties. It is similar to a stock or bond mutual fund, except that the money provided by the investors is invested in property and buildings rather than in stocks and bonds.

* **Direct Real Estate Investment**

The most common type of direct real estate investment is the purchase of a home, which is the largest investment most people ever make.

* **Raw Land**

Another direct real estate investment is the purchase of raw land with the intention of selling it in the future at a profit. During the time you own the land, you have negative cash flows caused by property maintenance, and taxes. An obvious risk is the possible difficulty of selling it for an uncertain price. Raw land generally has low liquidity compared to most stocks and bonds.

* **Land Development**

Land development can involve buying raw land, dividing it into individual lots, and building houses on it. Alternatively, buying land and building a shopping mall would also be considered land development. This is a feasible form of investment but requires a substantial commitment of capital, time, and expertise. Although the risks can be high because of the commitment of time and capital, the rates of return from a successful housing or commercial development can be significant.

**LOW-LIQUIDITY INVESTMENTS**

Most of the investment alternatives we have described thus far are traded on securities markets and except for real estate, have good liquidity. In contrast, the investments in this section have very poor liquidity and financial institutions do not typically acquire them because of the illiquidity and high transaction costs compared to stocks and bonds. Many of these assets are sold at auctions, causing expected prices to vary substantially.

* **Antiques**

The greatest returns from antiques are earned by dealers who acquire them at estate sales or auctions to refurbish and sell at a profit. If we gauge the value of antiques based on prices established at large public auctions, it appears that many serious collectors enjoy substantial rates of return. In contrast, the average investor who owns a few pieces to decorate his or her home finds such returns elusive. The high transaction costs and illiquidity of antiques may erode any profit that the individual may expect to earn when selling these pieces.

* **Art**

The entertainment sections of newspapers or the personal finance sections of magazines often carry stories of the results of major art auctions, such as when Van Gogh’s *Irises* and *Sunflowers.(Could you name at least 2 other artists whose work trades for substantial amounts of money?)*

However, investing in art typically requires substantial knowledge of art and the art world, a large amount of capital to acquire the work of well-known artists, patience, and an ability to absorb high transaction costs. For investors who enjoy fine art and have the resources, these can be satisfying investments; but, for most small investors, it is difficult to get returns that compensate for the uncertainty and illiquidity.

* **Coins and Stamps**

Many individuals enjoy collecting coins or stamps as a hobby and as an investment. The market for coins and stamps is fragmented compared to the stock market, but it is more liquid than the market for art and antiques as indicated by the publication of weekly and monthly price lists.

* **Diamonds and Gold**

Diamonds and Gold can be and have been good investments during many periods. Still, investors who purchase diamonds must realize that

* Diamonds/ Gold can be highly illiquid.
* The grading process that determines their quality is quite subjective,
* Most investment-grade gems/ metals require substantial investments, and
* They generate no positive cash flow during the holding period until the stone/ metal is sold.

**TOPIC 4: THE THEORY OF RATIONAL EXPECTATIONS AND THE EFFICIENT MARKET HYPOTHESIS**

**The theory of rational expectations**

Stock price evaluation and indeed the value of any investment depend on people’s expectations—especially of cash flows. This is why it is important to examine how expectations are formed. We do so by outlining the *theory of rational expectations*, currently the most widely used theory to describe the formation of business and consumer expectations.

In the 1950s and 1960s, economists regularly viewed expectations as formed from past experience only. Expectations of inflation, for example, were typically viewed as being an average of past inflation rates. This view of expectation formation, called **adaptive expectations**, suggests that changes in expectations will occur slowly over time as past data change. Adaptive expectations have been faulted on the grounds that people use more information than just past data on a single variable to form their expectations of that variable. Their expectations, for example, of inflation will almost surely be affected by their predictions of future monetary policy as well as by current and past monetary policy. In addition, people often change their expectations quickly in the light of new information.

To meet these objections to adaptive expectations, John Muth developed an alternative theory of expectations, called **rational expectations**, which can be stated as follows: ***Expectations will be identical to optimal forecasts (the best guess of the*** ***future) using all available information.*** To explain it more clearly, let’s use the theory of rational expectations to examine how expectations are formed in a situation that most of us encounter at some point in our lifetime: our drive to work on a matatu. Suppose that when Kamau travels when it is not rush hour, it takes an average of 30 minutes for his trip. Sometimes it takes him 35 minutes, other times 25 minutes, but the average non-rush-hour driving time is 30 minutes. If, however, Kamau leaves for work during the rush hour, it takes him, on average, an additional 10 minutes to get to work. Given that he leaves for work during the rush hour, the best guess of the driving time—the **optimal forecast**—is 40 minutes.

***Even though a rational expectation equals the optimal forecast using all available information, a prediction based on it may not always be perfectly accurate e.g.*** on Kamau’s usual route to work there is an accident that causes a two-hour traffic jam. If Kamau has no way of ascertaining this information, his rush hour expectation of 40 minutes’ driving time is still rational, because the accident information is not available to him for incorporation into his optimal forecast. However, if there was a radio or TV traffic report about the accident that he did not bother to listen to or heard but ignored, his 40-minute expectation is no longer rational. In light of the availability of this information, Kamau’s optimal forecast should have been two hours and 40 minutes.

There are two reasons why an expectation may fail to be rational:

1. People might be aware of all available information but find it takes too much effort to make their expectation the best guess possible.

2. People might be unaware of some available relevant information, so their best guess of the future will not be accurate.

**Formal Statement of the Theory**

We can state the theory of rational expectations somewhat more formally. If *X* stands for the variable that is being forecast (in our example, Kamau Commuter’s driving time), *X*e for the expectation of this variable (Kamau’s expectation of his driving time), and *X*of for the optimal forecast of *X* using all available information (the best guess possible of his driving time), the theory of rational expectations then simply says:

*X*e =*X*of

That is, the expectation of *X* equals the optimal forecast using all available information.

**Rationale behind the Theory**

Suppose that a plastics manufacturer— say, Haco Industries LTD—knows that interest-rate movements are important to the sales of its products. If Haco makes poor forecasts of interest rates, it will earn less profit, because it might produce either too many appliances or too few. There are strong incentives for Haco to acquire all available information to help it forecast interest rates and use the information to make the best possible guess of future interest rates movements.

The incentives for equating expectations with optimal forecasts are especially strong in financial markets. In these markets, people with better forecasts of the future get rich. The application of the theory of rational expectations to financial markets (where it is called the **efficient market hypothesis** or the **theory of efficient capital** **markets**) is thus particularly useful.

**Implications of the Theory**

Rational expectations theory leads to two common sense implications for the forming of expectations that are important in the analysis of the aggregate economy:

*1.* ***If there is a change in the way a variable moves, the way in which expectations of this variable are formed will change as well.***

This tenet of rational expectations theory can be most easily understood through a concrete example. Suppose that interest rates move in such a way that they tend to return to a “normal” level in the future. If today’s interest rate is high relative to the normal level, an optimal forecast of the interest rate in the future is that it will decline to the normal level. Rational expectations theory would imply that when today’s interest rate is high, the expectation is that it will fall in the future.

Suppose now that the way in which the interest rate moves changes so that when the interest rate is high, it stays high. In this case, when today’s interest rate is high, the optimal forecast of the future interest rate, and hence the rational expectation, is that it will stay high. Expectations of the future interest rate will no longer indicate that the interest rate will fall.

*2.* ***The forecast errors of expectations will on average be zero and cannot be predicted ahead of time.***

The forecast error of an expectation is *X* \_ *X* e, the difference between the realization of a variable *X* and the expectation of the variable; that is, if Kamau Commuter’s driving time on a particular day is 45 minutes and his expectation of the driving time is 40 minutes, the forecast error is 5 minutes.

Suppose that in violation of the rational expectations tenet, Kamau’s forecast error is not, on average, equal to zero; instead, it equals 5 minutes. The forecast error is now predictable ahead of time because Kamau will soon notice that he is, on average, 5 minutes late for work and can improve his forecast by increasing it by 5 minutes. Rational expectations theory implies that this is exactly what Kamau will do because he will want his forecast to be the best guess possible. When Kamau has revised his forecast upward by 5 minutes, on average, the forecast error will equal zero so that it cannot be predicted ahead of time. Rational expectations theory implies that forecast errors of expectations cannot be predicted.

**The Efficient Market Hypothesis: Rational Expectations in Financial Markets**

While the theory of rational expectations was being developed by monetary economists, financial economists were developing a parallel theory of expectation formation in financial markets. It led them to the same conclusion as that of the rational expectations theorists: Expectations in financial markets are equal to optimal forecasts using all available information.

Although financial economists gave their theory another name, calling it *the efficient market hypothesis,* in fact their theory is just an application of rational expectations to the pricing of securities. The efficient market hypothesis is based on the assumption that prices of securities in financial markets fully reflect all available information.

An **efficient capital market** is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security.

**Why should capital markets be efficient?**

**Set of assumptions that imply an efficient capital market**

1. A large number of profit maximizing participants analyze and value securities, each independently of the others.
2. New information regarding securities comes to the market in a random fashion, and the timing of one announcement is generally independent of others.
3. The third assumption is especially crucial: profit-maximizing investors adjust security prices rapidly to reflect the effect of new information. Although the price adjustment may be imperfect, it is unbiased. This means that sometimes the market will over adjust and other times it will under adjust, but you cannot predict which will occur at any given time. Security prices adjust rapidly because of the many profit-maximizing investors competing against one another.

The combined effect of (2) information coming in a random, independent, unpredictable fashion and (3) numerous competing investors adjusting stock prices rapidly to reflect this new information means that one would expect price changes to be **independent and random**. Most of the early work related to efficient capital markets was based on this***random walk hypothesis***, which contended that changes in stock prices occurred randomly. Fama formalized the theory and organized the growing empirical evidence as discussed below.

**Alternative efficient market hypotheses**

Fama divided the overall efficient market hypothesis (EMH) and the empirical tests of the hypothesis into three sub- hypotheses depending on the information set involved:

(1) Weak-form EMH,

(2) Semi- strong-form EMH, and

(3) Strong-form EMH.

The **weak-form EMH** assumes that current stock prices fully reflect all historical security market information, including the historical sequence of prices, rates of return, trading volume data, and other market-generated information, such as odd-lot transactions, block trades, and transactions by exchange specialists. Because it assumes that current market prices already reflect all past returns and any other security market information, this hypothesis implies that past rates of return and other historical market data should have no relationship with future rates of return (that is, rates of return should be independent). Therefore, this hypothesis contends that you should gain little from using any trading rule that decides whether to buy or sell a security based on past rates of return or any other past market data (This is a vindication to the *Technical analysts*- *Chartists*).

The **semi strong-form EMH** asserts that security prices adjust rapidly to the release of all public information; that is, current security prices fully reflect all public information. The semi strong hypothesis encompasses the weak-form hypothesis, because all the market information considered by the weak-form hypothesis, such as stock prices, rates of return, and trading volume, is public. Public information also includes all nonmarket information, such as earnings and dividend announcements, price-to-earnings (P/E) ratios, dividend-yield (D/P) ratios, price book value (P/BV) ratios, stock splits, news about the economy, and political news. This hypothesis implies that investors who base their decisions on any important new information after it is public should not derive above-average risk-adjusted profits from their transactions, considering the cost of trading because the security price already reflects all such new public information.

The **strong-form EMH** contends that stock prices fully reflect all information from public and private sources. This means that no group of investors has monopolistic access to information relevant to the formation of prices. Therefore, this hypothesis contends that no group of investors should be able to consistently derive above-average risk-adjusted rates of return. The strong form EMH encompasses both the weak-form and the semi strong-form EMH. Further, the strong form EMH extends the assumption of efficient markets, in which prices adjust rapidly to the release of new public information, to assume perfect markets, in which all information is cost free and available to everyone at the same time.

**EVIDENCE ON THE EFFICIENT MARKET HYPOTHESIS**

**Evidence in Favor of Market Efficiency**

1. **Performance of Investment Analysts and Mutual Funds.**

We have seen that one implication of the efficient market hypothesis is that when purchasing a security, you cannot expect to earn an abnormally high return, a return greater than the equilibrium return. This implies that it is impossible to beat the market. Many studies shed light on whether investment advisers and mutual funds (some of which charge steep sales commissions to people who purchase them) beat the market.

Consistent with the efficient market hypothesis, mutual funds do not beat the market. Not only do mutual funds not outperform the market on average, but when they are separated into groups according to whether they had the highest or lowest profits in a chosen period, the mutual funds that did well in the first period do not beat the market in the second period.

The conclusion from the study of investment advisers and mutual fund performance is this: ***Having performed well in the past does not indicate that an investment*** ***adviser or a mutual fund will perform well in the future.*** This is not pleasing news to investment advisers, but it is exactly what the efficient market hypothesis predicts. It says that some advisers will be lucky and some will be unlucky. Being lucky does not mean that a forecaster actually has the ability to beat the market.

The *Wall Street Journal*, for example, has a regular feature called “Investment Dartboard” that compares how well stocks picked by investment advisers do relative to stocks picked by throwing darts. Do the advisers win? To their embarrassment, the dartboard beats them as often as they beat the dartboard. Furthermore, even when the comparison includes only advisers who have been successful in the past in predicting the stock market, the advisers still don’t regularly beat the dartboard.

1. **Do Stock Prices Reflect Publicly Available Information?**

The efficient market hypothesis predicts that stock prices will reflect all publicly available information. Thus if information is already publicly available, a positive announcement about a company will not, on average, raise the price of its stock because this information is already reflected in the stock price. Early empirical evidence confirms this conjecture from the efficient market hypothesis: Favorable earnings announcements or announcements of stock splits (a division of a share of stock into multiple shares, which is usually followed by higher earnings) do not, on average, cause stock prices to rise.

1. **Random-Walk Behavior of Stock Prices.**

The term **random walk** describes the movements of a variable whose future changes cannot be predicted (are random) because, given today’s value, the variable is just as likely to fall as to rise. An important implication of the efficient market hypothesis is that stock prices should approximately follow a random walk; that is, ***future changes in stock prices should, for all practical*** ***purposes, be unpredictable***. The random-walk implication of the efficient market hypothesis is the one most commonly mentioned in the press, because it is the most readily comprehensible to the public. In fact, when people mention the “random walk theory of stock prices,” they are in reality referring to the efficient market hypothesis. It has generally been confirmed that stock prices are not predictable and follow a random walk.

1. **Technical Analysis.**

A popular technique used to predict stock prices, called *technical analysis*, is to study past stock price data and search for patterns such as trends andregular cycles. Rules for when to buy and sell stocks are then established on the basisof the patterns that emerge. The efficient market hypothesis suggests that technicalanalysis is a waste of time. The simplest way to understand why is to use the random walk result derived from the efficient market hypothesis that holds that past stock price data cannot help predict changes. Therefore, technical analysis, which relies on such data to produce its forecasts, cannot successfully predict changes in stock prices. Tests conducted discredit technical analysis: It does not outperform the overall market.

**Evidence against Market Efficiency**

1. **Small-firm effect.**

One of the earliest reported anomalies in which the stock market did not appear to be efficient is called the *small-firm effect*. Many empirical studies have shown that small firms have earned abnormally high returns over long periods of time, even when the greater risk for these firms has been taken into account.

1. **January Effect.**

Over long periods of time, stock prices have tended to experience an abnormal price rise from December to January that is predictable and hence inconsistent with random-walk behavior.

1. **Market Overreaction.**

Recent research suggests that stock prices may overreact to news announcements and that the pricing errors are corrected only slowly. When corporations announce a major change in earnings—say a large decline—the stock price may overshoot, and after an initial large decline, it may rise back to more normal levels over a period of several weeks. This violates the efficient market hypothesis, because an investor could earn abnormally high returns, on average, by buying a stock immediately after a poor earnings announcement and then selling it after a couple of weeks when it has risen back to normal levels.

1. **Excessive Volatility.**

A phenomenon closely related to market overreaction is that the stock market appears to display *excessive volatility*; that is, fluctuations in stock prices may be much greater than is warranted by fluctuations in their fundamental value. In an important paper, Robert Shiller of Yale University found that fluctuations in the S&P 500 stock index could not be justified by the subsequent fluctuations in the dividends of the stocks making up this index. There has been much subsequent technical work criticizing these results, but Shiller’s work, along with research finding that there are smaller fluctuations in stock prices when stock markets are closed, has produced a consensus that stock market prices appear to be driven by factors other than fundamentals.

1. **Mean Reversion.**

Some researchers have also found that stock returns display **mean reversion**: Stocks with low returns today tend to have high returns in the future, andvice versa. Hence stocks that have done poorly in the past are more likely to do well inthe future, because mean reversion indicates that there will be a predictable positivechange in the future price, suggesting that stock prices are not a random walk.

1. **The Neglected-Firm Effect and Liquidity Effects**

Arbel and Strebel gave another interpretation of the small-firm-in-January effect. Because small firms tend to be neglected by large institutional traders, information about smaller firms is less available. This information deficiency makes smaller firms riskier investments that command higher returns. “Brand-name” firms, after all, are subject to considerable monitoring from institutional investors, which promises high-quality information, and presumably investors do not purchase “generic” stocks without the prospect of greater returns. As evidence for the neglected-firm effect, Arbel26 divided firms into highly researched, moderately researched, and neglected groups based on the number of institutions holding the stock. The January effect was in fact largest for the neglected firms.

**CAUSES OF MARKET INEFFICIENCY/ ANOMALIES**

* **Insider trading**

This occurs when investors seek to obtain additional information from relatives or friends who could be working for the corporation in which they intend to purchase securities upfront. Such investors end up receiving information earlier than other investors in the market.

* **Taxation effect**

Companies that are required to pay tax are likely to report lower profits compared to those required not to pay taxes. Hence, investors may end up over valuing companies that don’t pay taxes while undervaluing the security prices of those companies that pay taxes.

* **Small company effect**

Research conducted suggests that security prices of small companies tend to be undervalued, and vice versa.

**AND SO, ARE MARKETS EFFICIENT?**

There is a telling joke about two economists walking down the street. They spot a Ksh. 500 note on the sidewalk. One starts to pick it up, but the other one says, “Don’t bother; if the note were real someone would have picked it up already.”

The lesson is clear. An overly doctrinaire belief in efficient markets can paralyze the investor and make it appear that no research effort can be justified. This extreme view is probably unwarranted. There are enough anomalies in the empirical evidence to justify the search for underpriced securities that clearly goes on.

The bulk of the evidence, however, suggests that any supposedly superior investment strategy should be taken with many grains of salt. The market is competitive *enough* that only differentially superior information or insight will earn money; the easy pickings have been picked. In the end it is likely that the margin of superiority that any professional manager can add is so slight that the statistician will not easily be able to detect it.

We conclude that markets are very efficient, but that rewards to the especially diligent, intelligent, or creative may in fact be waiting.

**Food for thought: Case for discussion**

Most studies on mutual funds performance conclude that fund managers cannot consistently exceed the average return in the stock market as a whole. Why might you expect this result? Why then would investors be interested in buying unit trusts from mutual funds?

**TOPIC 5: FOREIGN EXCHANGE MARKETS**

The price of one currency in terms of another is called the **exchange rate**. It affects the economy and our daily lives, because when the Kenya Shilling becomes more valuable relative to foreign currencies, foreign goods become cheaper for Kenyans and Kenyan goods become more expensive for foreigners. When the Kenya Shilling falls in value, foreign goods become more expensive for Kenyans and Kenyan goods become cheaper for foreigners. We begin our study of international finance by examining the **foreign exchange market**, the financial market where exchange rates are determined. Exchange rates are highly volatile. What factors explain the rise and fall of exchange rates? Why are exchange rates so volatile from day to day?

Most countries of the world have their own currencies: The United States has its dollar; the European Monetary Union, the euro; Brazil, its real; and India, its rupee and Kenya, The Shilling. Trade between countries involves the mutual exchange of different currencies. When a Kenyan imports a second hand vehicle from Japan, for example, Kenya Shillings must be exchanged for the foreign currency, the Japanese Yen. The trading of currency and bank deposits denominated in particular currencies takes place in the foreign exchange market. Transactions conducted in the foreign exchange market determine the rates at which currencies are exchanged, which in turn determine the cost of purchasing foreign goods and financial assets.

**What Are Foreign Exchange Rates?**

There are two kinds of exchange rate transactions. The predominant ones, called **spot transactions**, involve the immediate (two-day) exchange of bank deposits. **Forward transactions** involve the exchange of bank deposits at some specified future date. The **spot exchange rate** is the exchange rate for the spot transaction, and the **forward exchange rate** is the exchange rate for the forward transaction.

When a currency increases in value, it experiences **appreciation**; when it falls in value and is worth fewer Shillings, it undergoes **depreciation**.

***Example 1***

At the beginning of 2009, for example, the euro was valued at 1.18 Shillings, and as indicated in the “Forex report” of NTV, on February 5, 2010, it was valued at 1.08 Shillings. The euro *depreciated* by 8%:

*= 8%*

***Example 2***

The U.S. dollar, which went from a value of 0.85 Euros per dollar at the beginning of March 2010 to a value of 0.93 Euros per dollar on October 25, 2010, *appreciated* by 9%:

*= 9%*

***Example 3***

The value of one Kenyan shilling (Ksh) was Ugandan shilling (Ush) 25 in August 25, 2010. At the beginning of October, the Kenyan shilling was valued at Ush.26.10 at the start of October 2010. Determine the rate of appreciation/ depreciation.

**Why Are Exchange Rates Important?**

Exchange rates are important because they affect the relative price of domestic and foreign goods. The Kenya Shilling price of Kenyan goods to a Ugandan is determined by the interaction of two factors: the price of Kenyan goods in Kenya shillings and the Kenya Shilling/ Ugandan shilling exchange rate.

***When a country’s currency appreciates (rises in value relative to other currencies), the country’s goods abroad become more expensive and foreign goods in that country become cheaper (holding domestic prices constant in the two countries). Conversely, when a country’s currency depreciates, its goods abroad become cheaper and foreign goods in that country become more expensive.***

Appreciation of a currency can make it harder for domestic manufacturers to sell their goods abroad and can increase competition at home from foreign goods, because they cost less.

**How Is Foreign Exchange Traded?**

You cannot go to a centralized location to watch exchange rates being determined; currencies are not traded on exchanges such as the Nairobi Stock Exchange. Instead, the foreign exchange market is organized as an over-the-counter (OTC) market in which several hundred dealers (mostly banks) stand ready to buy and sell deposits denominated in foreign currencies. Because these dealers are in constant telephone and computer contact, the market is very competitive; in effect, it functions no differently from a centralized market.

**Exchange Rates in the Long Run**

Like the price of any good or asset in a free market, exchange rates are determined by the interaction of supply and demand. We start by examining exchange rate determinants in the long run.

* **The Law of One Price**

If two countries produce an identical good, and transportation costs and trade barriers are very low, the price of the good should be the same throughout the world no matter which country produces it. Suppose that Kenyan coffee costs Ksh.1000 per ton and identical Ethiopian coffee costs 100 Birr per ton. For the law of one price to hold, the exchange rate between the shilling and The Birr must be 10 Shillings per Birr (Birr 0.1 per Shilling) so that one ton of Kenyan coffee sells for 100 Birr in Ethiopia (the price of Ethiopian coffee) and one ton of Ethiopian coffee sells for Ksh.1000 in Kenya (the price of Kenyan coffee).

* **Theory of Purchasing Power Parity**

One of the most prominent theories of how exchange rates are determined is the **theory of purchasing power parity (PPP)**. It states that exchange rates between any two currencies will adjust to reflect changes in the price levels of the two countries. The theory of PPP is simply an application of the law of one price to national price levels rather than to individual prices. Suppose, from the previous example, the price of Kenyan coffee rises to Ksh. 1200 per ton. This means that from the law of one price, the exchange rate must be Ksh. 12 to One Ethiopian Birr.

Applying the law of one price to the price levels in the two countries produces the theory of purchasing power parity, which maintains that if the Kenyan price level rises 10% relative to the Ethiopian price level, The Birr will appreciate by 10%.

PPP theory often has been criticized for lack of predictive power in the short run.

The PPP conclusion that exchange rates are determined solely by changes in relative price levels rests on the assumption that all goods are identical in both countries and that transportation costs and trade barriers are very low. When this assumption is true, the law of one price states that the relative prices of all these goods (that is, the relative price level between the two countries) will determine the exchange rate. The assumption that goods are identical may not be too unreasonable for Kenyan and Ethiopian coffee, but is it a reasonable assumption for German cars (BMWs, Mercedes) and Indian Cars (Tata, Mahindra) cars?

PPP theory furthermore does not take into account that many goods and services (whose prices are included in a measure of a country’s price level) are not traded across borders. Housing, land, and services such as restaurant meals, haircuts, and piano lessons are not traded goods. So even though the prices of these items might rise and lead to a higher price level relative to another country’s, there would be little direct effect on the exchange rate.

**Factors That Affect Exchange Rates in the Long Run**

The basic reasoning proceeds along the following lines: Anything that increases the demand for domestic goods relative to foreign goods tends to appreciate the domestic currency because domestic goods will continue to sell well even when the value of the domestic currency is higher. Similarly, anything that increases the demand for foreign goods relative to domestic goods tends to depreciate the domestic currency because

Domestic goods will continue to sell well only if the value of the domestic currency is lower.

* **Relative Price Levels**

In line with PPP theory, when prices of Kenyan goods rise (holding prices of foreign goods constant), the demand for Kenyan goods falls and the Shilling tends to depreciate so that Kenyan goods can still sell well. By contrast, if prices of Ethiopian goods rise so that the relative prices of Kenyan goods fall, the demand for Kenyan goods increases, and the dollar tends to appreciate, because American goods will continue to sell well even with a higher value of the domestic currency. ***In the long run, a rise in a country’s price level (relative to the foreign price*** ***level) causes its currency to depreciate, and a fall in the country’s relative price level*** ***causes its currency to appreciate.***

* **Trade Barriers.**

Barriers to free trade such as **tariffs** (taxes on imported goods) and **quotas** (restrictions on the quantity of foreign goods that can be imported) can affect the exchange rate. Suppose that Kenya increases its tariff or puts a lower quota on Ethiopian coffee. These increases in trade barriers increase the demand for Kenyan coffee, and the Shilling tends to appreciate because Kenyan coffee will still sell well even with a higher value of the shilling. ***Increasing trade barriers cause a country’s*** ***currency to appreciate in the long run.***

* **Preferences for Domestic versus Foreign Goods.**

If the Kenyans develop an appetite for Japanese goods—say, for vehicles—the increased demand for Japanese goods (exports) tends to appreciate the Yen, because the Japanese goods will continue to sell well even at a higher value for the Yen. ***Increased demand for a country’s exports causes its currency to appreciate in the*** ***long run; conversely, increased demand for imports causes the domestic currency to depreciate.***

* **Productivity.**

If one country becomes more productive than other countries, businesses in that country can lower the prices of domestic goods relative to foreign goods and still earn a profit. As a result, the demand for domestic goods rises, and the domestic currency tends to appreciate. If, however, its productivity lags behind that of other countries, its goods become relatively more expensive, and the currency tends to depreciate. ***In the long run, as a country becomes more productive relative*** ***to other countries, its currency appreciates.***

**Exchange Rates in the short run**

Exchange rates are determined in the short run by the **interest parity condition**, which states that the expected return on domestic deposits is equal to the expected return on foreign deposits.

1 + ik = F / S \* (1 + ie), where

S = Spot exchange-rate

F = Forward ex-rate, same maturity.

ik = Interest rate in Kenya on bond or CD

ie = Interest rate in Ethiopia on comparable bond/CD

Example 1:

The interest rates in Kenya currently stand at 8%, while those in Ethiopia stand at 12%. If the current exchange rate is 0.1 Birr to a Kenyan shilling, compute the forward rate between the shilling and the Birr.

Solution

1 + ik = F / S \* (1 + ie)

1+ 8% = F/0.1 \*(1+0.12)

1.12 F = (1.08)\*0.1

1.12 F= 0.108

F=0.108/1.12 = 0.096 Birr to a Kenyan shilling. This is an appreciation of the Birr and depreciation in The Shilling because investors will prefer to invest in Ethiopia where interest rates are higher. This drives up the demand for the Birr, hence its appreciation. Calculate the % appreciation/ Depreciation of the Birr/ Shilling.

We currently live in a world in which there is **capital mobility**: Foreigners can easily purchase Kenyan assets such as shilling deposits, and Kenyans can easily purchase foreign assets such as euro deposits. Because foreign bank deposits and Kenyan bank deposits have similar risk and liquidity and because there are few impediments to capital mobility, it is reasonable to assume that the deposits are perfect substitutes (that is, equally desirable). When capital is mobile and when bank deposits are perfect substitutes, if the expected return on Shilling deposits is above that on foreign deposits, both foreigners and Kenyans will want to hold only shilling deposits and will be unwilling to hold foreign deposits.

**Forex quotations in Kenya**

**Local arbitrage**

**Triangular arbitrage**

**Managing forex exposure**

**Summary and conclusions**

Any factor that changes the expected returns on domestic or foreign deposits will lead to changes in the exchange rate. Such factors include changes in the interest rates on domestic and foreign deposits as well as changes in any of the factors that affect the long-run exchange rate and hence the expected future exchange rate. Changes in the money supply lead to exchange rate overshooting, causing the exchange rate to change by more in the short run than in the long run.

**CASE STUDIES ON THE EFFECTS OF EXCHANGE RATE POLICY ON WORLD TRADE**

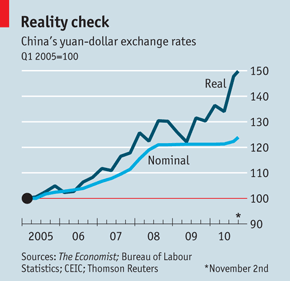
**CASE 1: The yuan-dollar exchange rates**

Nominally cheap or really dear?

**China’s exchange rate has risen faster than you think. Really**

The Economist, Nov 4th 2010 | *Hong Kong*

AMERICAN manufacturers complain that China undervalues its exchange rate. But which one? The nominal exchange rate is now 6.67 yuan to the dollar, having strengthened by almost 2% since September 5th (when Larry Summers, an adviser to President Barrack Obama, flew to Beijing to complain about the currency in person) and by 24% since 2005.



But China’s real exchange rate with America has strengthened by almost 50% since 2005, according to calculations by *The Economist* (see chart). A real exchange rate takes account of price movements in each country. If prices rise faster in China than in America, China’s real exchange rate goes up, even if its nominal exchange rate stays the same. That’s because higher prices at home make China’s firms less competitive abroad, just as if their currency had gone up.

To calculate the real exchange rate, you need a gauge of prices in each country. Many economists use the consumer-price index (CPI). But the CPI contains lots of goods and services (such as housing rents) that cannot be traded across borders. Our measure of the real exchange rate, which we will regularly update, offers a more direct measure of competitiveness by looking instead at unit labor costs: the price of labor per widget. These costs go up when wages rise or productivity (widgets per worker) falls. In American manufacturing, unit labor costs have risen by less than 4% since the first quarter of 2005, according to the Bureau of Labor Statistics. In Chinese industry they have risen by 25% over that period, according to our sums.

Those estimates are rough and ready. There are no official statistics on China’s unit labor costs. Our calculations are based on the value-added in industry (which extends beyond manufacturing) and the wage bill of urban factories, which does not count the town and village enterprises that employ over two-thirds of China’s metal-bashers. But the urban plants probably churn out a big share of the goodies that America buys.

The combination of a 24% rise in the yuan against the dollar and a 21% increase in Chinese unit labor costs, relative to America’s, explains the steep appreciation shown in the chart. The yuan may well still be undervalued but our index suggests American manufacturing should have less to fear from Chinese competition than it did five years ago. Until June 2009 appreciation was largely because of the stronger yuan. Since then it is largely because China’s unit labor costs have grown much faster than America’s. Employers in China’s coastal factories have suffered labor shortages and strikes. America’s factories have reported strong productivity gains as they have wrung more out of the workers that survived the recession (although those gains will be hard to repeat).

Of course, China and America do not trade only with each other. China’s big surpluses and America’s big deficits depend on the real exchange rate between them and all of their trading partners. But calculating that would require timely estimates of unit labor costs for all of China’s trading partners. That is a bit too laborious.

**CASE 2: The global monetary system**

Beyond Breton Woods 2

**Is there a better way to organize the world’s currencies?**

Nov 4th 2010 | *WASHINGTON, DC*

WHEN the leaders of the Group of Twenty (G20) countries meet in Seoul on November 11th and 12th, there will be plenty of backstage finger-pointing about the world’s currency tensions. American officials blame China’s refusal to allow the yuan to rise faster. The Chinese retort that the biggest source of distortion in the global economy is America’s ultra-loose monetary policy—reinforced by the Federal Reserve’s decision on November 3rd to restart “quantitative easing”, or printing money to buy government bonds (see [article](http://www.economist.com/node/17417742)). Other emerging economies cry that they are innocent victims, as their currencies are forced up by foreign capital flooding into their markets and away from low yields elsewhere.

These quarrels signify a problem that is more than superficial. The underlying truth is that no one is happy with today’s international monetary system—the set of rules, norms and institutions that govern the world’s currencies and the flow of capital across borders.



There are three broad complaints. The first concerns the dominance of the dollar as a reserve currency and America’s management of it. The bulk of foreign-exchange transactions and reserves are In Dollars, even though the United States accounts for only 24% of global GDP (see chart 1). A disproportionate share of world trade is conducted in Dollars. To many people the supremacy of the greenback in commerce, commodity pricing and official reserves cannot be sensible. Not only does it fail to reflect the realities of the world economy; it leaves others vulnerable to America’s domestic monetary policy.

The second criticism is that the system has fostered the creation of vast foreign-exchange reserves, particularly by emerging economies. Global reserves have risen from US$.1.3 trillion (5% of world GDP) in 1995 to US$.8.4 trillion (14%) today. Emerging economies hold two-thirds of the total. Most of their hoard has been accumulated in the past ten years (see chart 2).



These huge reserves offend economic logic, since they mean poor countries, which should have abundant investment opportunities of their own, are lending cheaply to richer ones, mainly America. Such lending helped precipitate the financial crisis by pushing down America’s long-term interest rates. Today, with Americans saving rather than spending, they represent additional thrift at a time when the world needs more demand.

The third complaint is about the scale and volatility of capital flows. Financial crises have become more frequent in the past three decades. Many politicians argue that a financial system in which emerging economies can suffer floods of foreign capital (as now) or sudden droughts (as in 1997-98 and 2008) cannot be the best basis for long-term growth.

France, which assumes the chairmanship of the G20 after the Seoul summit, thinks the world can do better. Nicolas Sarkozy, the country’s president, wants to put international monetary reform at the top of the group’s agenda for the next year. He wants a debate “without taboos” on how to improve an outdated system.

Such a debate has in fact been going on sporadically for decades. Ever since the post-war Breton Woods system of fixed but adjustable exchange rates fell apart in the 1970s, academics have offered Utopian blueprints for a new version. The question is: what improvements are feasible?

The shape of any monetary system is constrained by what is often called the “trilemma” of international economics. If capital can flow across borders, countries must choose between fixing their currencies and controlling their domestic monetary conditions. They cannot do both. Under the classical 19th-century gold standard, capital flows were mostly unfettered and currencies were tied to gold. The system collapsed largely because it allowed governments no domestic monetary flexibility. In the Breton Woods regime currencies were pegged to the dollar, which in turn was tied to gold. Capital mobility was limited, so that countries had control over their own monetary conditions. The system collapsed in 1971, mainly because America would not subordinate its domestic policies to the gold link.

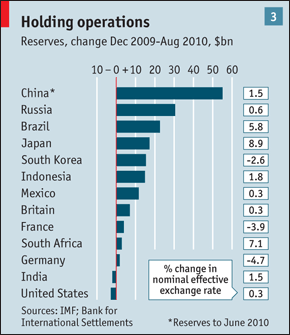
Today’s system has no tie to gold or any other anchor, and contains a variety of exchange-rate regimes and capital controls. Most rich countries’ currencies float more or less freely—although the creation of the euro was plainly a step in the opposite direction. Capital controls were lifted three decades ago and financial markets are highly integrated.

Broadly, emerging economies are also seeing a freer flow of capital, thanks to globalization as much as to the removal of restrictions. Net private flows to these economies are likely to reach Ksh.340 billion this year, up from Ksh.81 billion a decade ago. On paper, their currency regimes are also becoming more flexible. About 40% of them officially float their currencies, up from less than 20% 15 years ago. But most of these floats are heavily managed. Countries are loth to let their currencies move freely. When capital pours in, central banks buy foreign exchange to stem their rise.

They do this in part because governments do not want their exchange rates to soar suddenly, crippling exporters. Many of them are worried about level as well as speed: they want export-led growth—and an undervalued currency to encourage it.

Just as important are the scars left by the financial crises of the late 1990s. Foreign money fled, setting off deep recessions. Governments in many emerging economies concluded that in an era of financial globalization safety lay in piling up huge reserves. That logic was reinforced in the crisis of 2008, when countries with lots of reserves, such as China or Brazil, fared better than those with less in hand. Even with reserves worth 25% of GDP, South Korea had to turn to the Fed for an emergency liquidity line of Shillings.

This experience is forcing a rethink of what makes a “safe” level of reserves. Economists used to argue that developing countries needed foreign exchange mainly for emergency imports and short-term debt payments. A popular rule of thumb in the 1990s was that countries should be able to cover a year’s worth of debt obligations. Today’s total far exceeds that.



Among emerging economies, China plays by far the most influential role in the global monetary system. It is the biggest of them, and its currency is in effect tied to the dollar. The yuan is widely held to be undervalued, though it has risen faster in real than in nominal terms (see [article](http://www.economist.com/node/17420096)). And because China limits capital flows more extensively and successfully than others, it has been able to keep the yuan cheap without stoking consumer-price inflation.

China alone explains a large fraction of the global build-up of reserves (see chart 3). Its behavior also affects others. Many other emerging economies, especially in Asia, are reluctant to risk their competitiveness by letting their currencies rise by much. As a result many of the world’s most vibrant economies in effect shadow the dollar, in an arrangement that has been dubbed “Breton Woods 2”.

**History lessons**

The similarities between this quasi-dollar standard and the original Breton Woods system mean that many of today’s problems have historical parallels. Barry Eichengreen of the University of California, Berkeley, explores these in “Exorbitant Privilege”, a forthcoming book about the past and future of the international monetary system.

Consider, for instance, the tension between emerging economies’ demand for reserves and their fear that the main reserve currency, the dollar, may lose value—a dilemma first noted in 1947 by Robert Triffin, a Belgian economist. When the world relies on a single reserve currency, Triffin argued, that currency’s home country must issue lots of assets (usually government bonds) to lubricate global commerce and meet the demand for reserves. But the more bonds it issues, the less likely it will be to honor its debts. In the end, the world’s insatiable demand for the “risk-free” reserve asset will make that asset anything but risk-free. As an illustration of the modern thirst for Dollars, the IMF reckons that at the current rate of accumulation global reserves would rise from 60% of American GDP today to 200% in 2020 and nearly 700% in 2035.

If those reserves were, as today, held largely in Treasury bonds, America would struggle to sustain the burden. Unless it offset its Treasury liabilities to the rest of the world by acquiring foreign assets, it would find itself ever deeper in debt to foreigners. Triffin’s suggested solution was to create an artificial reserve asset, tied to a basket of commodities. John Maynard Keynes had made a similar proposal a few years before, calling his asset “Bancor”. Keynes’s idea was squashed by the Americans, who stood to lose from it. Triffin’s was also ignored for 20 years.

But in 1969, as the strains between America’s budget deficit and the dollar’s gold peg emerged, an artificial reserve asset was created: the Special Drawing Right (SDR), run by the IMF. An SDR’s value is based on a basket of the dollar, euro, pound and yen. The IMF’s members agree on periodic allocations of SDRs, which countries can convert into other currencies if need be. However, use of SDRs has never really taken off. They make up less than 5% of global reserves and there are no private securities in SDRs.

Some would like that to change. Zhou Xiaochuan, the governor of China’s central bank, caused a stir in March 2009 when he argued that the SDR should become a true global reserve asset to replace the dollar. Mr. Sarkozy seems to think similarly, calling for a multilateral approach to the monetary system. If commodities were priced in SDRs, the argument goes; their prices would be less volatile. And if countries held their reserves in SDRs, they would escape the Triffin dilemma.

For SDRs to play this role, however, they would have to be much more plentiful. The IMF agreed on a US$.250 billion allocation among measures to fight the financial crisis, but global reserves are rising by about US$.700 billion a year. Even if there were lots more SDRs it is not clear why governments would want to hold them. The appeal of the dollar is that it is supported by the most liquid capital markets in the world. Few countries are likely to use SDRs much until there are deep private markets in SDR-denominated assets.

Only if the IMF evolved into a global central bank able to issue them at speed could SDRs truly become a central reserve asset. This is highly unlikely. As Mr. Eichengreen writes: “No global government… means no global central bank, which means no global currency. Full stop.”

Nor is it clear that the SDR is really needed as an alternative to the dollar. The euro is a better candidate. This year’s fiscal crises notwithstanding, countries could shift more reserves into Euros if America mismanaged its finances or if they feared it would. This could happen fast. Mr. Eichengreen points out that the dollar had no international role in 1914 but had overtaken sterling in governments’ reserves by 1925.

Alternatively, China could create a rival to the dollar if it let the yuan be used in transactions abroad. China has taken some baby steps in this direction, for instance by allowing firms to issue yuan-denominated bonds in Hong Kong. However, an international currency would demand far bigger changes. Some observers argue that China’s championing of the SDR is a means to this end: if the yuan, for instance, became part of the SDR basket, foreigners could have exposure to yuan assets.

More likely, China is looking for a way to offload some of the currency risk in its stash of Dollars. As the yuan appreciates against the dollar (as it surely will) those reserves will be worth less. If China could swap Dollars for SDRs, some exchange-rate risk would be shifted to the other members of the IMF. A similar idea in the 1970s foundered because the IMF’s members could not agree on who would bear the currency risk. America refused then and surely would now.

Rather than try to create a global reserve asset, reformers might achieve more by reducing the demand for reserves. This could be done by improving countries’ access to funds in a crisis. Here the G20 has made a lot of progress under South Korea’s leadership. The IMF’s lending facilities have been overhauled, so that well-governed countries can get unlimited funds for two years.

**Overcome your reserve**

So far only a few emerging economies, such as Mexico and Poland, have signed up, not least because of the stigma attached to any hint of a loan from the IMF. Perhaps others could be persuaded to join (best of all, in a large group). Reviving and institutionalizing the swap arrangements between the Fed and emerging economies set up temporarily during the financial crisis might also reduce the demand for reserves as insurance. Also, regional efforts to pool reserves could be strengthened.

However, even if they have access to emergency money, governments will still want to hoard reserves if they are determined to hold their currencies down. That is why many reformers think the international monetary system needs sanctions, imposed by the IMF or the World Trade Organization (WTO), against countries that “manipulate” their currencies or run persistent surpluses.

This is another idea with a history. Along with Bancor, Keynes wanted countries with excessive surpluses to be fined, not least because of what happened during the Depression, when currency wars and gold-hoarding made the world’s troubles worse. The idea went nowhere because America, then a surplus economy, called the shots at the Breton Woods conference in 1944. The same forces are evident today—except that America, as a deficit country, is on the other side of the argument. Like America in the 1940s, China would never agree to reforms that penalized surplus countries.

Such rules would probably be unenforceable anyway. Harsh penalties in international economic agreements are rarely effective: remember Europe’s Stability and Growth Pact? Modest co-operation has better prospects. Just as the Plaza Accord in 1985 was designed to weaken the dollar and narrow America’s current-account deficit, so the G20 could develop a plan for rebalancing the world economy, perhaps with target ranges for current-account balances and real exchange rates. These would be supported by peer pressure rather than explicit sanctions.

A rebalancing plan, which included faster real appreciation of the yuan, would remove many of the tensions in the monetary system. But shifting the resources of China and other surplus countries from exports to consumption will take time.

Meanwhile, capital flows into emerging markets are likely to surge much faster. This is partly due to America’s quantitative easing: cheap money will encourage investors to seek higher yields where they can find them. It is also partly due to the growth gap between vibrant emerging economies and stagnant rich ones. And it reflects the under-representation of emerging-market assets in investors’ portfolios.

For the past decade emerging economies have responded to these surges largely by amassing reserves. They need other options. One, adopted by Brazil, South Korea, Thailand and others, and endorsed by the IMF, is to impose or increase taxes and regulations to slow down inflows. Some academics have suggested drawing up a list of permissible devices, much as the WTO has a list of legitimate trade barriers.

This is a sensible plan, but it has its limits. Capital-inflow controls can temporarily stem a flood of foreign cash. However, experience, notably Chile’s in the 1990s, suggests that controls alter the composition but not the amount of foreign capital; and they do not work indefinitely. As trade links become stronger, finance will surely become more integrated too.

Other tools are available. Tighter fiscal policy in emerging economies, for instance, could lessen the chance of overheating. Stricter domestic financial regulation would reduce the chances of a credit binge. Countries from Singapore to Israel have been adding, or tightening, prudential rules such as maximum loan-to-value ratios on mortgages.

But greater currency flexibility will also be needed. The trilemma of international economics dictates it: if capital is mobile, currency rigidity will eventually lead to asset bubbles and inflation. Unless countries are willing to live with such booms—and the busts that follow—Breton Woods 2 will have to evolve into a system that mirrors the rich world’s, with integrated capital markets and floating currencies.

Although the direction is clear, the pace is not. The pressure of capital flows will depend on the prospects for rich economies, particularly America’s, as well as the actions of the Fed. Emerging economies’ willingness to allow their currencies to move will depend on what China does—and China, because its capital controls are more extensive and effective than others’, can last with a currency peg for longest.

If America’s economy recovers and its medium-term fiscal outlook improves, the pace at which capital shifts to the emerging world will slow. If China makes its currency more flexible and its capital account more open in good time, the international monetary system will be better able to cope with continued financial globalization and a wide growth gap between rich and emerging markets. But if the world’s biggest economy stagnates and the second-biggest keeps its currency cheap and its capital account closed, a rigid monetary system will eventually buckle.

**CASE 3: Global policymakers clash on currency policies**

**NEW YORK** | Wed Oct 6, 2010 6:19pm EDT

NEW YORK (Reuters) - Global policymakers clashed over exchange rates on Wednesday as Western leaders warned China and other emerging markets that simultaneous efforts to weaken their currencies could derail economic recovery.

Treasury Secretary Timothy Geithner said countries with large trade surpluses must let their currencies rise lest they trigger a devastating round of competitive devaluations.

"When large economies with undervalued exchange rates act to keep the currency from appreciating, that encourages other countries to do the same," Geithner said Wednesday ahead of the weekend's semi-annual international Monetary Fund meeting.

Officials around the world fear such a "race to the bottom" will trigger trade tariffs and other measures that damage global economic growth.

Using exchange rates "as a policy weapon" to undercut other economies and boost a country's own exporters "would represent a very serious risk to the global recovery," IMF Managing Director Dominique Strauss-Kahn was quoted as saying in Wednesday's edition of the Financial Times.

But China, which the West accuses of keeping the yuan artificially weak to promote exports, has rebuffed such calls. On Wednesday, Premier Wen Jiabao told the European Union to stop piling pressure on Beijing to revalue the yuan, saying a rapid exchange rate shift could unleash disastrous social turmoil in China.

"Many of our exporting companies would have to close down, migrant workers would have to return to their villages," Wen said during a visit to Brussels. "If China saw social and economic turbulence, then it would be a disaster for the world."

RACE TO THE BOTTOM

The expectation that the Federal Reserve will expand the U.S. money supply again, lowering short term U.S. Treasury yields even further, has weighed on the U.S. dollar pushing the euro, yen and other emerging market currencies higher in recent months forcing some governments to take action.

The global exchange rate system and the issue of rebalancing world economic growth will likely be at the top of the agenda at the IMF meeting this weekend and at Friday's gathering of finance leaders from the Group of 20 economies.

Canadian Finance Minister Jim Flaherty said on Wednesday that officials would discuss currency intervention and inflexible exchange rates.

Despite disagreement among governments, IMF chief economist Olivier Blanchard said he was "optimistic" about a solution. "We are just at the beginning of the process, so it's much too early to declare it a failure."

Others, however, are less sure.

Brendan Brown, economist at Mitsubishi UFJ Securities International, said the IMF, which has the United States as its biggest stakeholder, would not try to prevent further U.S. monetary easing or a weaker dollar.

"That Washington institution has failed in its central mission to prevent currency war," he wrote in a report.

**CASES STUDY DISCUSSION QNS**

1. What is the difference between real and nominal exchange rates? Explain citing examples from the case study above and other relevant cases you know of?

*It is customary to distinguish nominal exchange rates from real exchange rates. Nominal exchange rates are established on currency financial markets called "forex markets", which are similar to stock exchange markets. Rates are usually established in continuous quotation, with newspaper reporting daily quotation (as average or finishing quotation in the trade day on a specific market). Central bank may also fix the nominal exchange rate.*

*Real exchange rates are nominal rate corrected somehow by* [*inflation*](http://www.economicswebinstitute.org/glossary/inflat.htm) *measures. For instance, if a country A has an inflation rate of 10%, country B an inflation of 5%, and no changes in the nominal exchange rate took place, then country A has now a currency whose real value is 10%-5%=5% higher than before**. In fact, higher prices mean an appreciation of the real exchange rate, other things equal.*

1. Why is exchange rate between the Yuan and the Dollar so important to America? Explain.
2. If Kenya were an export oriented economy, would it be advisable to have a strong or a weak currency relative to foreign currency? Explain citing relevant examples.
3. Discuss the different exchange rate regimes applied by governments.

*The concept of exchange rate regime may be explained as the method that is employed by the governments in order to administer their respective currencies in the context of the other major currencies of the world. The* [*foreign exchange market*](http://www.economywatch.com/exchange-rate/regime.html) *is pretty important in this case as well.   
  
Exchange rate regime has often been likened to monetary policies and it may be concluded that both the processes are actually dependent on a lot of similar factors.   
  
There are some basic exchange rate regimes that are used nowadays – the floating exchange rate, the pegged float exchange rate and the fixed or pegged exchange rate. In case of the floating exchange rate regime, the values of the* [*currencies*](http://www.economywatch.com/exchange-rate/regime.html) *are influenced by the movements in the financial market.*

***FLOATINGEXCHANGERATES*** *The floating rates are extensively used in most countries of the world. Some common examples of the floating exchange rates would be the British pound, United States dollar,* [*Japanese Yen*](http://www.economywatch.com/exchange-rate/regime.html) *and Euro.*

*Under the free float system, the Value of the currency is determined solely by market demand for and supply of the currency in the foreign exchange market.*

* *Trade flows and capital flows are the main factors affecting the exchange rate*
* *In the long run it is the macro economic performance of the economy (including trends in competitiveness) that drives the value of the currency*
* *No pre-determined official target for the exchange rate is set by the Government. The government and/or monetary authorities can set interest rates for domestic economic purposes rather than to achieve a given exchange rate target*
* *It is rare for pure free floating exchange rates to exist - most governments at one time or another seek to "manage" the value of their currency through changes in interest rates and other controls*

*The dirty float or a managed float is where the governments always step in to address any excesses in the changes of value.   
  
There are three types of pegged floats – the crawling bands, pegging with horizontal bands and crawling bands. In case of the crawling bands the rate is permitted to fluctuate within a particular band or limit and the movements are based on a particular central value. This central value is adjusted at definite periods. The entire exercise is performed in a controlled manner. In case of the crawling pegs the rates of exchange stay fixed. In case the rates are pegged with horizontal bands the rate would be allowed to move within a specified limit or band, which is 1% more than the band.*

***FIXEDEXCHANGERATESYSTEM*** *In case of the fixed exchange rate regimes or the pegged exchange rate, as it is also known, the rates are meant to be converting directly to some other currency. At times, in case of the pegged exchange rate, the currency may be attached to a group of* [*currencies*](http://www.economywatch.com/exchange-rate/regime.html) *or even precious metals like gold.*

***Advantages of Fixed Exchange Rates (disadvantages of floating rates)***

*Fixed rates provide greater certainty for exporters and importers and under normally circumstances there is less speculative activity - although this depends on whether the dealers in the foreign exchange markets regard a given fixed exchange rate as appropriate and credible. Sterling pound came under intensive speculative attack in the autumn of 1992 because the markets perceived it to be overvalued and ripe for devaluation.*

*Fixed exchange rates can exert a strong discipline on domestic firms and employees to keep their costs under control in order to remain competitive in international markets. This helps the government maintain low inflation - which in the long run should bring interest rates down and stimulate increased trade and investment.*

***Countries with different exchange rate regimes***

*Countries with fixed exchange rates often impose tight controls on capital flows to and from their economy. This helps the government or the central bank to limit inflows and outflows of currency that might destabilize the fixed exchange rate target,*

*The Chinese Yuan is essentially fixed using a basket of currencies- including the euro and the US dollar. Currency transactions involving trade in goods and services are allowed full currency convertibility. But capital account transactions are tightly controlled by the State Administration of Foreign Exchange.*

*The Hungarians have a semi-fixed exchange rate against the Euro with the forint allowed to move 2.5% above and below a central rate against the Euro. The Hungarian central bank must give permission for overseas portfolio investments on a case by case basis. The Russian rouble is in a managed floating system but there is a 1% tax on purchases of hard currency. In contrast, the Argentinean peso is pegged to the US dollar at parity (Ksh.1 = 1 peso) but international trade transactions (involving current and capital flows) are not subject to stringent government or central bank control.*

**TOPIC 6: INTEREST RATES**

**Introduction**

Interest rates are among the most closely watched variables in the economy. Their movements are reported almost daily by the news media, because they directly affect our everyday lives and have important consequences for the health of the economy. Interest rates affect economic decisions made by households and firms- whether to invest or save, borrow cash by floating shares or issue bonds, buy a house or rent e.t.c. We shall discuss the concept of Yield to Maturity (YTM), the most accurate measure of interest rates. By interest rates, financial economists are actually referring to the YTM. We shall also explore alternative but less accurate ways to measure interest rates. It is also worth noting that interest is the price paid on issue of debt instruments (Bonds, notes, and bank loans).

We examine how the overall level of *nominal* interest rates (which we refer to as simply “interest rates”) is determined and which factors influence their behavior. Note that interest rates are negatively related to the price of bonds, so if we can explain why bond prices change, we can also explain why interest rates fluctuate. To do this, we make use of supply and demand analysis for bond markets and money markets to examine how interest rates change. In order to derive a demand curve for assets like money or bonds, the first step in our analysis, we must first understand what determines the demand for these assets. We do this by examining an economic theory known as the *theory of asset* *demand,* which outlines criteria that are important when deciding how much of an asset to buy. Armed with this theory, we can then go on to derive the demand curve for bonds or money. After deriving supply curves for these assets, we develop the concept of *market equilibrium*, the point at which the quantity supplied equals the quantity demanded. Then we use this model to explain changes in equilibrium interest rates.

**Measuring interest rates**

In terms of the timing of their payments, there are four basic types of credit market instruments.

1. A **simple loan**, in which the lender provides the borrower with an amount of funds, which must be repaid to the lender at the maturity date along with an additional payment for the interest. Many money market instruments are of this type: for example, commercial loans to businesses.
2. A **fixed-payment loan** (which is also called a **fully amortized loan**) in which the lender provides the borrower with an amount of funds, which must be repaid by making the same payment every period (such as a month), consisting of part of the principal and interest for a set number of years. For example, if you borrowed Ksh.1,000, a fixed-payment loan might require you to pay Ksh.126 every year for 25 years. Installment loans (such as auto loans) and mortgages are frequently of the fixed-payment type.
3. A **coupon bond** pays the owner of the bond a fixed interest payment (coupon payment) every year until the maturity date, when a specified final amount (**face value** or **par value**) is repaid. The coupon payment is so named because the bondholder used to obtain payment by clipping a coupon off the bond and sending it to the bond issuer, who then sent the payment to the holder. Nowadays, it is no longer necessary to send in coupons to receive these payments. A coupon bond with Ksh.1,000 face value, for example, might pay you a coupon payment of Ksh.100 per year for ten years, and at the maturity date repay you the face value amount of Ksh.1,000. (The face value of a bond is usually in Ksh.1,000 increments.) A coupon bond is identified by three pieces of information. First is the **corporation or government agency** that issues the bond. Second is the **maturity date** of the bond. Third is the bond’s **coupon rate**, the dollar amount of the yearly coupon payment expressed as a percentage of the face value of the bond. In our example, the coupon bond has a yearly coupon payment of Ksh.100 and a face value of Ksh.1,000. The coupon rate is then Ksh.100/Ksh.1,000 \_ 0.10, or 10%. Capital market instruments such as U.S. Treasury bonds and notes and corporate bonds are examples of coupon bonds.
4. A **discount bond** (also called a **zero-coupon bond**) is bought at a price below its face value (at a discount), and the face value is repaid at the maturity date. Unlike a coupon bond, a discount bond does not make any interest payments; it just pays off the face value. For example, a discount bond with a face value of Ksh.1,000 might be bought for Ksh.900; in a year’s time the owner would be repaid the face value of Ksh.1,000. U.S. Treasury bills, U.S. savings bonds, and long-term zero-coupon bonds are examples of discount bonds.

These four types of instruments require payments at different times: Simple loans and discount bonds make payment only at their maturity dates, whereas fixed-payment loans and coupon bonds have payments periodically until maturity. How would you

decide which of these instruments provides you with more income? They all seem so different because they make payments at different times. To solve this problem, we use the concept of present value, explained earlier, to provide us with a procedure for

measuring interest rates on these different types of instruments.

**YIELD TO MATURITY**

This is the most common and important measures of interest rates. It is that rate of interest that equates the present value of the payments received from a debt instrument with its value today. It is very similar to the internal rate of return computed in project appraisal.

Example 1

Simple Loan.

Using the concept of present value, the yield to maturity on a simple loan is easy to calculate. Supposing you took a loan of Ksh. 100 today, and the payments in one year’s time would be Ksh.110 (the repayment of Ksh.100 plus the interest payment of Ksh.10). We can use this information to solve for the yield to maturity i by recognizing that the present value of the future payments must equal today’s value of a loan. Making today’s value of the loan (Ksh.100) equal to the present value of the Ksh.110 payment in a year gives us:

Solving for the interest (YTM), you get 10%.

Exercise: Compute the YTM for the simple loan above, assuming its market value is Ksh. 120, Ksh. 150, Ksh. 180, Ksh. 200, and Ksh. 250 respectively. Draw a graph of interest rates (YTM) against the market value of the loan. What observations can you make from the graph?

Example 2

Fixed-Payment Loan.

Recall that this type of loan has the same payment every period throughout the life of the loan. On a fixed-rate mortgage, for example, the borrower makes the same payment to the bank every month until the maturity date, when the loan will be completely paid off. To calculate the yield to maturity for a fixed-payment loan, we follow the same strategy we used for the simple loan—we equate today’s value of the loan with its present value. Because the fixed-payment loan involves more than one payment, the present value of the fixed-payment loan is calculated as the sum of the present values of all payments.

Suppose you have a mortgage worth Ksh. 100,000 whose repayment is Ksh. 12,600 p.a. for 25 years. The YTM will be

You will then solve for the YTM using trial and error, and application of interpolation.

Example 3

Coupon Bond.

To calculate the yield to maturity for a coupon bond, follow the same strategy used for the fixed-payment loan: Equate today’s value of the bond with its present value. Because coupon bonds also have more than one payment, the present value of the bond is calculated as the sum of the present values of all the coupon payments plus the present value of the final payment of the face value of the bond.

Suppose you have a 10 year 10% coupon bond with a face value of Ksh. 1000. What is its YTM? (Assume interest is payable only once a year for simplicity).

You then solve for YTM.

Example 4

Discount Bond.

The yield-to-maturity calculation for a discount bond is similar to that for the simple loan. Let us consider a discount bond such as a one-year GoK Treasury bill, which pays off a face value of Ksh.1,000 in one year’s time. If the current purchase price of this bill is Ksh.900, then equating this price to the present value of the Ksh.1,000 received in one year, using Equation 1, gives:

You will get YTM= 11.1%.

**OTHER MEASURES OF INTEREST RATES**

**Current yield**

The **current yield** is an approximation of the yield to maturity on coupon bonds that is often reported, because in contrast to the yield to maturity, it is easily calculated. It is defined as the yearly coupon payment divided by the price of the security,

Where *ic-* current yield

*P-* Price of the coupon bond

*C-* Yearly coupon payment

**Yield on a Discount Basis (Discount Yield)**

Before the advent of calculators and computers, it was difficult to calculate interest rates as a yield to maturity. Instead, the interest rate on bills was quoted as a yield on a discount basis (or discount yield), and is still done today. Formally, the yield on a discount basis is defined by the following formula:

Where idb- yield on a discount basis

F- Face value of the discount bond

P- Purchase price of the discount bond

**The Distinction between Interest Rates and Returns**

The return on a bond will not necessarily equal the interest rate on that bond although for many securities the two may be closely related. For any security, the rate of return is defined as the payments to the owner plus the change in its value, expressed as a fraction of its purchase price. To make this definition clearer, let us see what the return would look like for a Ksh.1,000-face-value coupon bond with a coupon rate of 10% that is bought for Ksh.1,000, held for one year, and then sold for Ksh.1,200. The payments to the owner are the yearly coupon payments of Ksh.100, and the change in its value is Ksh.1,200 - Ksh.1,000= Ksh.200. Adding these together and expressing them as a fraction of the purchase price of Ksh.1,000 gives us the one-year holding-period return for this bond of 30%, as opposed to the 10% coupon.

**The Distinction between Real and Nominal Interest Rates**

So far in our discussion of interest rates, we have ignored the effects of inflation on the cost of borrowing. What we have up to now been calling the interest rate makes no allowance for inflation, and it is more precisely referred to as the **nominal interest** **rate**, which is distinguished from the **real interest rate**, the interest rate that is adjusted by subtracting expected changes in the price level (inflation) so that it more accurately reflects the true cost of borrowing. The real interest rate is more accurately defined by the Fisher equation, named for Irving Fisher, a great monetary economist of the twentieth century. The Fisher equation states that the nominal interest rate I equals the real interest rate Ir plus the expected rate of inflation (Πe).

I= Ir + Πe

Rearranging terms, we find that the real interest rate equals the nominal interest rate minus the expected inflation rate:

Ir= I - Πe

To see why this definition makes sense, let us first consider a situation in which you have made a one-year simple loan with a 5% interest rate and you expect the price level to rise by 3% over the course of the year. As a result of making the loan, at the end of the year you will have 2% more in real terms, that is, in terms of real goods and services you can buy. In this case, the interest rate you have earned in terms of real goods and services is 2%; that is, as indicated by the Fisher definition.

Now what if the interest rate rises to 8%, but you expect the inflation rate to be 10% over the course of the year? Although you will have 8% more Shillings at the end of the year, you will be paying 10% more for goods; the result is that you will be able to buy 2% fewer goods at the end of the year and you are 2% worse off in real terms.

This is also exactly what the Fisher definition tells us, because:

As a lender, you are clearly less eager to make a loan in this case, because in terms of real goods and services you have actually earned a negative interest rate of 2%. By contrast, as the borrower, you fare quite well because at the end of the year, the amounts you will have to pay back will be worth 2% less in terms of goods and services—you as the borrower will be ahead by 2% in real terms. When the real interest rate is low, there are greater incentives to borrow and fewer incentives to lend.

**Factors that influence interest rates (YTM) for individual securities, e.g. bonds**

1. **Inflation**

The higher the actual or expected inflation rates, the higher will be the interest. Refer to real vs. nominal interest rates and the Fisher effect. As a result interest rates will always have an element of **inflation premium**.

1. **Real interest rate**

This is the rate of interest a security would pay if there was zero inflation over its holding period. It measures the community preference to consuming today, rather than in the future. The higher the community’s preference to consume today, the higher the real interest rates will be.

1. **Default or credit risk**

This is the risk that the security issuer may fail to pay the coupon (interest) and the principal upon the maturity of the security. The higher the perceived default risk, the higher the interest rates will be. This is the reason JUNK BONDS offer higher returns due to their high default risks.

1. **Liquidity risk**

A liquid asset can be easily converted to cash at a fair value, and at a rather short notice. The higher the liquidity of a security (that is the lower the liquidity risk), the lower its interest rates will be.

1. **Special provisions or covenants**

The special provisions, called indenture, relate to the security callability, taxability and convertibility. The indentures may also involve setting aside a sinking fund to pay coupons and the principal of the security upon maturity. The provisions that favor the security holder will tend to lower the interest rates- such as a provision for sinking funds and convertibility.

1. **Term to maturity**

Interest rate change due in part by changes in terms to maturity. This change in interest rates due to changes in terms to maturity is the **term structure of interest rates** or **the yield curve**. Generally, the longer the term to maturity, the higher the interest rate the holders demand.

**Discussion Questions**

1. To pay for college, you have just taken out a Ksh.100000 government loan that makes you pay Ksh.12600 per year for 25 years. However, you don’t have to start making these payments until you graduate from college two years from now. Why is the yield to maturity necessarily less than 12%, the yield to maturity on a normal Ksh.100000 fixed-payment loan in which you pay Ksh.12600 per year for 25 years?
2. Which Ksh.1, 000 bonds has the higher yield to maturity, a 20-year bond selling for Ksh.800 with a current yield of 15% or a one-year bond selling for Ksh.800 with a current yield of 5%?
3. If there is a decline in interest rates, which would you rather be holding, long-term bonds or short-term bonds? Why? Which type of bond has the greater interest-rate risk?
4. Write down the formula that is used to calculate the yield to maturity on a 20-year 10% coupon bond with Ksh.1,000 face value that sells for Ksh.2,000.

**TOPIC 7: RISKS OF FINANCIAL INSTITUTIONS AND MARKETS**

RISKS FACED BY FINANCIAL INSTITUTIONS AND MARKETS WITH SPECIFIC REFERENCE TO BANKS

Risk arises from any transaction or business decision whose result may deviate from the expected outcome, that is, due to unexpected (negative) changes in its value. For banks, we can draw a simplified picture of their business activities (see Figure below) and can infer three broad categories of risk:

■ **Credit risk**: Risk of loss due to unexpected deterioration in the credit quality of borrowers (including transfer or country risk)

■ **Market risk**: Risk of loss due to unexpected changes in market prices or liquidity (including all balance sheet risks)

**■ Operational risk**: Risk of loss due to:

– **Business (or banking) risk**: Unexpected changes in business volume, margins, and costs (including legal and regulatory risks)

– **Event risk**: One-time events that are not related to business risk/ operations (including political risks and natural disasters)

Figure Types of risk in banks: Courtesy