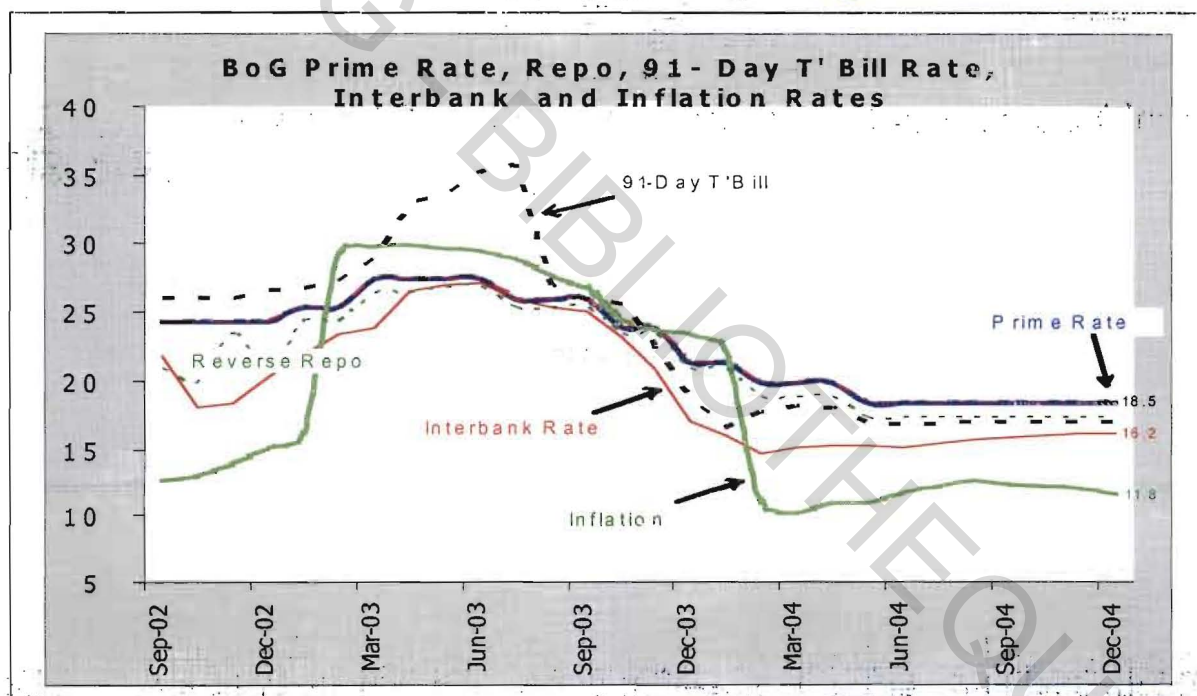


The behaviour of interest rate structure in the Ghanaian money market



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ABSTRACT

The concept of the behaviour of interest rate is very important in financial literature and has been addressed by many economists. From the literature review in this paper, interest rates in the money market are synonymous to the price level in the goods market. They are influenced by factors in the economy such as money supply and demand, causing changes in their behaviour as reflected in changes in prices of various securities. The greater the intensity of demand relative to the intensity of supply, the higher the rates and vice versa. The ways in which interest rate behave define the structure of interest rates.

In Ghana, interest rates in the money market were gradually liberalized from 1987 to allow market forces to guide interest rates. Financial sector liberalization aimed at allowing the commercial banks a free hand in their operations and thereby encourages competition in the banking system. Monetary policy also sought to reduce government borrowing from the banking system in order to free resources. The BOG performed its supervisory function more effectively within the framework of new banking law. Despite the liberalization and the reforms which are been set up over the years; interest rates have been excessively high.

This paper was set to investigate the behaviour of interest rate structure in the money market with a view to determine the extent to which interest rates influence money market activity and also the extent to which relaxation of interest rates policies in Ghana have improved the structure of economic incentives.

It came out from the studies that Bank of Ghana implements monetary policy by directly influencing short-term interest rates. The Monetary Policy Committee of the BOG sets the prime rate, which acts as barometer to direct the nation's economic objectives. In addition to the prime rate, the BOG maintains indirect monetary policy instruments, using open market

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operations (OMOs), the Repos and the Reverse Repo as its main policy instruments, which enable the BOG to fine tune the level of reserves in the banking system. This means keeping the banking system short of reserves, and supplying just enough to meet the demand at its target rate.

Using monthly data for the period between 2003 and 2004 from the research department of Ghana Commercial Bank Ltd. (GCB), signals provide by the prime rate appeared to have been followed by other market rates of interest (inflation, lending rates, 91-day Treasury bill rate) in the money market. Analyzing the Government securities in the money market, it was observed that the 2004 short-term Treasury yield Curve was an upward-sloping Yield curve, indicating that future short-term rates on treasury bills would rise. The study also shows that investors prefer to invest in the 91-day T-bill than the 182-day T-bill and 1-year note.

After findings and analysis, the study provided suggestions for planning to enable the government achieves its monetary policies objectives.

RESUME

Le taux d'intérêt est l'une des variables macroéconomiques qui préoccupent le plus les économistes au sein des entreprises, des banques et des administrations, en raison principalement de son lien avec la rentabilité des investissements, le prix des actifs financiers et les taux de change. De la revue de littérature de ce mémoire, il ressort que Le niveau du taux d'intérêt peut être expliqué par des facteurs influençant l'offre et la demande. Ces facteurs peuvent être économique tels que l'inflation, l'épargne, les politiques fiscales, etc... ou non économique tel que l'instabilité politique. Le niveau du taux d'intérêt, le prix de l'argent, a une grande importance au niveau macro-économique. Il oriente les décisions des offreurs et des demandeurs : s'il est bas, les demandeurs vont être nombreux, s'il est haut, les offreurs vont être nombreux.

Au Ghana, les taux d'intérêt sur le marché monétaire ont été progressivement libéralisés à partir de 1987 afin de leurs permettre d'assurer un rôle déterminant dans la mobilisation de l'épargne et l'allocation optimale des ressources. Cette libéralisation a permis aux banques de fixer librement leurs taux d'intérêt encourageant de ce fait la concurrence dans le système bancaire. La politique monétaire du pays est mise en oeuvre par la Banque Centrale du Ghana (Bank of Ghana) conformément à la loi bancaire et de la constitution de la République du Ghana.

Ce mémoire a eu pour objectif d'étudier le comportement de la structure du taux d'intérêt sur le marché monétaire Ghanaian sur la période 2003-2004.

Il ressort de cette étude que La Banque Centrale du Ghana met en application la politique monétaire du pays en influençant directement sur les taux d'intérêt à court terme. Le « Monetary Policy Committee » de la Banque Centrale du Ghana se réunit tous les deux mois et fixe le « Prime rate » qui agit en tant que baromètre pour diriger les objectifs macroéconomiques de la nation. En plus du « prime rate », la « Bank of Ghana » assume sa politique monétaire par une politique de gestion indirecte de la monnaie, avec comme

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principaux instruments opérationnels, le « Open Market Opérations », « Repurchase Agreement » et le « Reverse Repos ». Ces instruments permettent à la Banque Centrale du Ghana de réguler convenablement le niveau de monnaie dans l'économie.

Les résultats obtenus à partir des données annuelles (2003 à 2004) issues du département de recherche « Research department of Ghana Commercial Bank Ltd. », montre que les signaux fournis par le « prime rate » sont suivis par les autres taux tels que l'inflation, le taux inter bancaire, les taux des bons du Trésor. Analysant la courbe des taux de l'année 2004, l'étude fait ressortir une courbe des taux normale ; indiquant que les futurs taux à court terme seraient en hausses. L'étude fait ressortir que aussi les investisseurs ont une préférence pour les bons du trésor « Treasury bill » de trois que ceux de six mois et d'une durée d'un an.

Les résultats obtenus suggèrent aux Gouvernement une meilleure programmation afin d'atteindre ses objectifs de politiques monétaires.

ACRONYMS

BOG	Bank of Ghana- The central bank of the Republic of Ghana
Cedis	Legal currency of the Republic of Ghana
ECOWAS	Economic Community of West African States, comprising Benin, Burkina Fasco, Cape Verde, La Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.
DMBs	Deposit Money Banks
ERP	Economic Recovery Programme
FINSAP	Financial Sector Adjustment Programme introduced by the Government in 1987
Government or GOG	Government of the Republic of Ghana
GCB	Ghana Commercial Bank
OMO	Open Market Operations
Repos	Repurchase Agreements

GENERALE INTRODUCTION

The money market is a vibrant market, affecting daily banking activities. As a short-term market for financial institutions, money changes hands in a short time frame and the players in the market have to be alert to changes, up to date news, innovative strategies and products.

In Ghana the classification of instruments stems from legislation whereby banks are to have a certain percentage of their assets in liquid form. Cash and certain instruments with a term to maturity of one year or less, are defined as liquid asset by the authorities.

The instruments traded at the money market attract interest. The interest rates charged at the money market varies depending on the nature of the instruments as well as the term of the instrument. This study will examine the behaviour of interest rates structures in the Ghanaian money market.

BACKGROUND TO THE GHANAIN FINANCIAL SECTOR

In any economy the money market and the capital market make up the financial system, which facilitates lending and borrowing. In general terms, the money market is the market where liquid and short-term borrowing and lending take place. The lending of funds in this market constitutes short-term investments. In a certain sense, all bank notes, current accounts, cheque accounts, et cetera belong to the money market.

The money market, however, differs from the capital market in that it deals with near-money instruments, and whereas the capital market deals with long term instruments this makes the money market a minimum risk market. The two markets are related in the sense that expected values of short-term interest rates determine future or long-term rates. Usually, there is a spread between the two rates known as the risk premium. Although short-term rates are important, it is the long-term rate that is relevant for corporate borrowing and long term finance investment.

Before 1987, the system of monetary management in Ghana was typically based on direct controls on the premise that the financial system that emerged with Ghana's political independence was not proactive enough to support the type of development pace envisaged.

Post independent financial reforms in Ghana concentrated on both institution building and review of policies that would make credit available to various designated economic agents considered as deprived sectors. In a study by Ghana Commercial Bank quarterly economic review (July-December, 2003), it was pointed out that the financial policies adopted between 1960 and 1987 were directed at removing the perceived distortions in banking practices and monetary arrangements. All interest rates were administratively determined. Interest rates were generally set low to keep the cost of financial intermediation low and especially the interest cost to the budget.

However, the use of direct controls generally proved ineffective and counter productive. It contributed to deterioration in the banking system by making financial intermediation unattractive and discouraging innovation in the system leading to misallocation of resources. These weaknesses inevitably necessitated reforms in 1987.

In 1987, interest rates were liberalized under Ghana's Economic Recovery Program. A market for securities was created to be used for monetary policy purposes. For instance, a weekly auction in treasury bills was introduced to take care of excess liquidity in the system, especially in the rural areas. Schemes were put in place to allow government to put its house in order and to move away from borrowing from the banking sector. In addition, improvements in the money market for bonds were introduced. These include a 30-day bill to deal with the short-end of the market and a long dated bill. Another concept introduced in the reform was discount houses whose purpose was to facilitate the transmission of the monetary policy measures from Bank of Ghana (BOG) to the other banks.

By 1991, the restructuring and the stabilization efforts began to produce results. Banks became free to set their own interest rates and formulate their own credit policies. Money supply growth fell below 20 per cent annually. Growth rate averaged 5 per cent per annum

while inflation fell to about 10 per cent.

In 1992, a fully-fledged money market was established in Ghana when the BOG abolished all direct controls of monetary management and started to rely primarily on Open Market Operations (OMO) to transmit monetary policy. The indirect system of monetary management was under way. Intervention tools used by BOG included reserve requirements, discount window, foreign exchange operation, foreign exchange swaps, and open market operation.

In 1996, treasury bills became the main instrument of intervention. Although a lot has been achieved in laying down the infrastructure for market intervention, there has not been much success in achieving money supply and inflation targets. Discount window operations and refinance schemes are used by central bank to offer collateralized short-term lending to banks.

To provide the "lubricant" to private sector engine, a holistic financial sector strategy has been set up since 2001. The objective is to generally deepen the intermediation processes to make the financial sector efficient in the mobilization and allocation of funds, fully integrated into the global financial systems and economies to support the Government's vision of making Ghana the ECOWAS gateway of international capital inflow. It is also intended to promote and sustain investor confidence by supporting the sector through strong and independent judiciary, legislative and regulatory environment.

According to the Bankers Association (Newsletter, March 2005), the reforms have had and continue to have favorable impact in the sector. Visible progress has been attained in the legislative issues. So far about 4 laws; bills out of 17 financial institutions laws targeted for review or drafting have been passed by parliament within a period of two years. Much progress has also been made in the money market deepening issues.

STATEMENT OF THE PROBLEM

The behaviour of interest rates can be explained by factors influencing demand and supply conditions in the money market. The money market has a supply of a certain commodity,

and a demand for that commodity. Savings (investments) represent the supply side in the money markets, and financing needs, as the demand side. Because of the interaction between the various financial commodities, money and service markets in a country, the simple theory of supply and demand determining prices cannot be applied in its basic form in this market.

The theoretical system would determine that the rate (price for money) would drop if there is a surplus savings (supply) in the market, but if there are savings in the market which are not utilized to finance income-making activities, the national income will eventually decline, probably bringing about a decline in the rate of savings which could work against the fall in interest rates. The climate for private savings and investment in Ghana has been poor for much of the country's history as an independent state. Some have argued that this has been as a result of low incomes, low levels of growth, underdeveloped nature of the financial sector and types of monetary management. Available statistics put Ghana's savings mobilization rate at 12.5 per cent compared to 18 per cent for sub-Sahara Africa, which is considered too low for development. It is observed that low savings interest rates do not attract holders of funds to deposit their cash with the bank. The introduction of BOG securities bearing high interest rates has intensified competition among banks. This is likely to improve interest rates prevailing in these institutions to levels that will be attractive to savers and thus raise the levels of savings and investment in the economy.

Expectations of higher inflation could push up interest rates. Prices of goods are expected to go up, so consumers tend to buy now rather than later, which pushes up the demand for cash balances and hikes interest rates. The adverse macro economy factors in Ghana in the mid 90s have affected interest rates (Lending rates). With the exception of some few years, targets for inflation have not been achieved. In fact, according to Dr Nii Kwaku Sowa of the Center For Economic Policy Analysis, in a speech quoted by GCB Quarterly Economic Review (July-December, 2004) said that inflation is the "albatross" of Ghana's Economic Recovery. It is obvious that the high rate of inflation in the country is promoting a lot speculative ventures to the extent that people prefer to hold on to money and invest in quick business or trading and sometimes physical materials rather than depositing such funds with the banks for small interest earnings. Banks also, cannot price their products below the rate

of inflation

Fiscal policy decisions by the government also affect the financial markets. The decision on how to finance the government's deficits will affect the supply and demand for cash balances, short and long-term deposits (M3 money supply), and thus influence interest rates. If the government decides to finance its monetary needs with the issuing of short-term securities such as treasury bills, the demand for money in the short-term market increases, exerting upward pressure on interest rates. Until recently, the underlying fiscal deficit in Ghana was the Achilles heel of the economy, which was not only fuelling inflation but also threatening to thwart monetary policies. Due to chronic budget deficits, the fiscal authority planning has monopolized the tool of the Central Bank to raise funds from the public to meet its budget deficits. The fiscal authority puts the funds mobilized back into the economy either to finance its expenditure or pay interest on its borrowings. This does not reduce liquidity to fuel inflation. The efficacy of the monetary policy is thus undermined, thereby affecting the behaviour of interest rates.

Another factor influencing the financial markets is expectations; for instance, if rates are high, the expectation is that the rates are going to decline in the future, the demand for securities and thus the supply of money will be high, pushing interest rates down, and security prices up.

It is on the bases of above problems that this study is set to investigate. The study will look at the extent to which interest rates have influenced the level of money market activity and its effects on the achievement of economy policy objectives of the country.

RESEARCH QUESTIONS

The financial reforms measures instituted by Government of Ghana are to make a vibrant money market. While a lot has been achieved in laying down the infrastructure for market intervention, there has not been success in achieving money supply and inflation targets over the years.

From the earlier part of this section, it is realized that interest rates in the Ghanaian money

market are affected by several factors, which in broad terms are income, government policies, and inflation. The reforms were not geared towards full liberalization of interest rate policy that mitigates against the successful functioning of financial markets. Thus, the relevant questions that were raised about the money market include:

- (a) What is the role of Bank of Ghana in monitoring the money market?
- (b) Could the behaviour of interest rates be explained by demand for and supply of money?
- (c) How do interest rates changes motivate people to hold money or save in the money market?
- (d) Does the high inflation in Ghana affect the lending rates?
- (e) What are the direction and future trends of the short term of treasury yield curves?

PURPOSE OF THE STUDY

The objective of this study is to examine the research questions that have been raised in the previous section. Specifically, the study examined, in detail the role of BOG in monitoring the money market and how interest rates changes motivate people to hold money or save in the money market. Our research also examined the influence of inflation on interest rates. This study provided an understanding of the concepts of the Ghanaian Treasury bill yield curves.

Based on the results of the above analysis, relevant policy recommendations were offered to promote banking efficiency and financial deepening for savings mobilization and economic growth. In addition, this study explains the direction and future trends of interest rates of various securities in the money market and thus serves as a guide to potential investors in the selection of their investment portfolio. Furthermore, it's useful for policy formulation, and the impact of such policies on investments in the money market. It is expected that this study will provide the theoretical base upon which other research on interest rates behaviour could make.

RESEARCH METHODOLOGY

The area under the research study is the interest rates in the Ghanaian money market. Specific area includes treasury bills and note, bank of Ghana bills and notes, base rate, prime rate, savings rate.

Data for the research was secondary data collected from the research department of Ghana Commercial Bank, official publications of the Bank of Ghana, namely annual reports, quarterly publications and library materiel.

The computer was used for the graphical analysis of trends of interest rates data available for the period. Presentation of the study is, in the main, descriptive and partly analytical.

SCOPE OF THE STUDY

In terms of scope, the present research gives an understanding of the Ghanaian money market and instruments trade. It presents the main actors of the Ghanaian money market and the role of money market institution in the determination of interest rates. This study explains the behaviour of interest rates by using only the money market instruments, which are linked to interest rates. All the maturities of those instruments are one-year or less that one year.

ORGANIZATION OF THE STUDY

The research start by the introduction that comprises background of the study, statement of the problem, research question, purpose of the study, the research methodology, the scope and limitation of the study. After that, the research study has been divided into two main Parts. The first part is the literature review, which consists of theoretical framework on the problem and the overview of the Ghanaian money market. The second part deals with the data analysis and with the findings, conclusion and recommendations.

LITERATURE REVIEW

Section one: THEORETICAL ANALYSIS OF INTEREST RATES

The concept of interest rate is very important in financial literature and has been addressed by many economists. Interest rate is the price that a borrower pays in order to be able to consume resources now rather than at a point in time in the future (the Chartered Institute of Bankers, 1991). Correspondingly, it is therefore the price that a lender receives to forgo current consumption in order to take advantage of consumption of resources at some point in the future. Garden Ackley (1961) corroborates this definition that interest rate is the price for the lending and borrowing of money. For Keynes (1936), interest rate is determined by the demand for and supplies of money; but to the classical economists, interest rates are determined by the interaction of supply and demand for savings. The importance of the difference between normal and real interest rate cannot be overlooked. The former is the market interest rate whereas the latter is the former adjusted by rate of inflation.

From the definition above, it can be said that the behaviour of interest rates can be explained by factors influencing demand and supply condition in the money market. Those factors can be economic such as income, inflation, and government policies or non-economic such as political instability.

I-Theories of interest rate

Interest charged for the use of credit or money is usually figured as a percentage of the principal and computed annually. Simple interest is computed annually on the principal. Compound interest, paid by some savings banks, computes the interest on the principal as well as on any previous interest that has been added to the principal.

Such charges have been made since ancient times, and they early fell into disrepute. In Greece, Solon forbade selling men into slavery for unpaid interest. The Jews, the Christian Church, and Islam forbade interest charges, or usury, as it was called, among their own

groups. The merchant princes of Italy and elsewhere evaded such restrictions, even though the medieval churchmen considered money barren, or unable to produce wealth. Gradually the distinction was made between low interest rates and high ones, which came to be known, and condemned, as usury. England in 1545 removed the prohibition on interest charges and fixed a legal maximum interest; other countries followed.

In modern economics, a number of different theories on interest have been influential. The classical theory of interest, developed by Adam Smith and David Ricardo and expanded by others in later years, posited the interest rate as the force, which balanced savings with investment. According to that theory, the level of real interest rates is determined by the level of saving (which provides a flow of loanable funds) and the level of investment in capital equipment and so on (which provides a demand for loanable funds). The more that people wish to save; the lower will be the level of interest rate, as the supply of loanable funds rises relative to demand. Marxist economic theory argued against the classical view that saw interest rates as a function of natural market forces, contending instead that interest was purely exploitative, because no service was rendered and it benefited only the capitalist class. Abstinence theory, developed by Nassau Senior (Bohm-Bawerb, Eugen Von, 1890) and later expanded by Eugen Böhm-Bawerk's productivity theory, argued that interest was a reward for saving money (in an interest-earning bank account) rather than spending it on commodities. Greater returns were available to those who saved, and interest rates were the deciding force in saving or spending. Irving Fisher advanced productivity theory by adding human capital to the understanding of interest rates. He explored the willingness (or lack thereof) of individuals to give up their present income for a future income, which may be significantly greater, as an important factor in the decision to invest. John Maynard Keynes (1936) took a much different approach, arguing that interest rates were a sort of reward for giving up liquidity, and varying interest rates were the significant force in a decision to invest. In its simple form, the liquidity preference theory of interest rate states that the equilibrium rate of interest is determined at that point where the liquidity preference or the demand schedule for money intersects the supply schedule of money. The demand for money or the liquidity preference arises due to the transaction motive, the precautionary motive and the speculative motive. The transaction motive relates to the demand for money for transaction purpose which in the case of business firms depends upon the size or volume of total

turnover and in the case of individuals depends upon their income, the frequency with which income is received or the time interval between pay periods and the general practice of making payments. The precautionary motive gives rise to the demand for money for facing unforeseen contingencies such as sudden sickness, arrival of guests, accidental loss of life and property, etc. Keynes lumps together these two demands and relates these to the level of income. The transactions demand and the precautionary demand for money are interest-inelastic. The speculative motive gives rise to the speculative demand for money, which is interest-elastic with the elasticity increasing as the rate of interest, fall until at some low enough rate of interest (around two per cent) the demand becomes perfectly interest-elastic. In other words, while the transactions and precautionary demand for money are positive function of the level of income, there is an inverse relationship between the speculative demand and interest rate. The liquidity preference theory makes changes in interest rate closely related to the speculative demand for money and money supply. Basically, the more money (or liquidity) that people wish to hold, other things being equal, the higher will be its price (the rate of interest); the greater the supply of money, the lower the price, and so on. This new model was fundamental to the understanding of fluctuating interest rates, stepping beyond the focus of classical economics on equilibrium rates.

In recent years, the problem of inflation has been the paramount issue for interest theory. In the United States, the individual states are responsible for setting a legal rate at which debts may be assessed if they have become due and remain unpaid, and for setting the maximum rate allowed in a contract. In 1981, when rates soared to record highs, many legislatures increased or abolished such maximum rates in order to attract businesses involved in lending. In Great Britain, the government does not fix legal interest rates, but courts can determine whether a given rate is injurious.

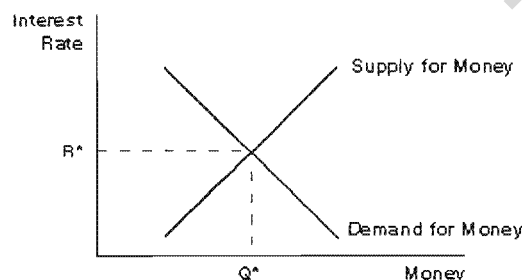
High interest rates can dampen the economy by making it more difficult for consumers, businesses, and home buyers to secure loans, as happened in 1981 when the base rate—the rate that banks charge their best customers—climbed past 20%. Economists differed over the causes of such extraordinary rates, but inflationary expectations, federal budget deficits, and the restrictive monetary policies of the Federal Reserve System were important factors. Interest rates fell in the latter half of the 1980s and stayed low into the 2000s. In 2001–3,

during recession and subsequent slow growth, the Federal Reserve lowered its short-term rates to levels not seen since the 1960s and late 1950s, but the low rates produced the desired economic growth only gradually. In mid-2004 the Federal Reserve began gradually but steadily raising rates again.

II-Behaviour of interest rates in the money market

According to the Chartered Institute of Bankers (The monetary and financial system, 1991), there is wide variation in interest rates in the money market. The interest rate depends on a number of factors. These include: the length of time for which the money is borrowed (or saved), the security of the loan (or investment), the nature of the financial institution the money is borrowed from (or lent to), and the amount of competition between financial institutions.

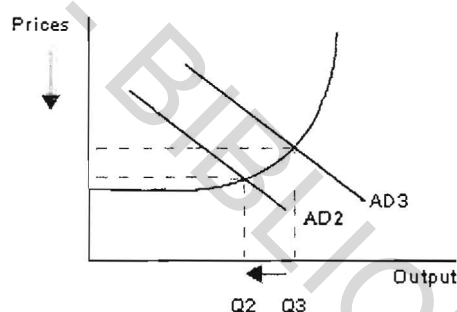
If a bank considers a particular loan to be a risky one, and there is little or no security for the loan then it is likely to charge a high rate of interest to compensate it for the risk it is taking. However, where there is security for the loan (as in the case of house purchase) then the interest will be relatively lower to reflect the lower risk. The interest rate will be set by the equilibrium in the money market. This equilibrium depends on the levels of demand and supply. In the money market, the demand comes from people wanting to borrow and spend, while the supply of money depends on the government's monetary policy. We can see this in the diagram below:



The equilibrium interest rate is at R^* . If either the demand or supply of money changes, then this will tend to change the equilibrium interest rate in the markets, and the central bank may need to act to maintain the level of interest rates.

Monetary policy decisions involve setting the interest rates on overnight loans in the money market. Other interest rates in the economy are influenced by this interest rate to varying degrees, so that the behaviour of borrowers and lenders in the financial markets is affected by monetary policy. Monetary policy and the alteration of interest rates are therefore important weapons to direct a nation's economic objectives

The Central Bank's Monetary Policy Committee sets interest rates. They will set the rate according to the prevailing economic conditions and the inflation target they have been set. If they feel that there are significant inflationary pressures in the economy, then they will tend to increase the level of interest rates. This will tend to discourage borrowing and therefore reduce aggregate demand. The effect of this is shown in the diagram below as a shift from AD3 to AD2:



As a result of the level of borrowing and therefore aggregate demand falling the inflationary pressures in the economy have been reduced. These inflationary pressures may have come from excessive growth in wages, excessive growth in lending by financial institutions or perhaps over-optimistic expectations in the economy.

The key to using the interest rate to help economic management is the effect that interest rates have on demand. If the Central bank feels that inflationary pressures are rising in the economy then they will increase the rate of interest to dampen down the growth of aggregate demand.

Demand falls when interest rates are raised through their effect on the components of aggregate demand. According to Keynes (1936), aggregate demand is made up of the following types of spending: Consumption + Investment + Government expenditure + (Exports - Imports). Of these, the first two, consumption and investment, in particular will be affected by interest rate changes.

Consumption will fall when interest rates are raised. This happens for two reasons. The first is that it is now more expensive to borrow money. This will put people off borrowing, and lower borrowing means lower spending. However, it is not just new borrowing that is affected, but also people who are still paying off existing borrowing. For many people their main investment is their house. To buy this they are quite likely to have taken out a mortgage and higher interest rates means higher mortgage payments. These reduce their disposable income and so leave them with less money each month to spend. The same will be true for people who have borrowed to buy other things as well.

To invest many firms will, like people, have to borrow. They will borrow if they think that the rate of return on their investment is greater than interest rates. If interest rates rise then fewer investment projects are likely to be viable, because with the higher cost of borrowing they are now less profitable. The rise in interest rates will therefore reduce the level of investment. The amount investment falls by depends on the interest elasticity of demand for investment.

From the analysis above, the Monetary Policy Committee of the Central Bank sets the level of interest rates. However, they cannot just announce a change in interest rates and leave it at that. The prime rate has to ensure that this level of interest rates is not undermined by changes in the demand for money or in the supply of money. In other words they have to intervene in the money markets to ensure that this new level of interest rates remains at the equilibrium level.

They do this through their dealings with banks and other financial institutions.

The Central Bank will usually try to ensure that the markets are kept a little short of liquidity. This will happen automatically if the amount of tax paid in a given day (taken out of bank accounts) is less than the banks receive that same day in government expenditure being paid into accounts held by them. Even if this is not the case, sales of government debt (Treasury Bills and bonds) will leave the banks short of cash. This is because the people buying the debt will take the money out of their bank accounts to pay the government, leaving the banks with less money. The banks being a bit short will turn to the Central Bank as 'Lender

of Last Resort'. The Central Bank will provide the banks with the necessary liquidity (usually by 're-purchasing securities from them - a 'repo agreement') but at the interest rate they choose. This interest rate will be the interest rate they have set. In this way interest rates are maintained.

III-The term structures

Interest rates exist for loans and deposits for any duration of transaction. It is possible to borrow or invest funds for maturities ranging from one day (overnight) to 25 or 30 years. Some borrowers might be able to obtain a perpetual loan that never requires repayment. Companies will pay more for loans than they will earn on deposits, but the term structure of interest rates is similar for deposits and loans (The Chartered Institute of Bankers, 2001). The term of investment is of extreme importance in the determination of interest rates differentials. Normally, a period of one year or less is considered as short-term and more than one year as longer-term. Normally, we expect a short-term rate of interest to be lower than long-term rate (Incoom, 1992). Thus, it is the attitude of the investor towards uncertainty and his expectations of the future that determine the level of the rates of interest or the shape of the yield curve, as popularly known.

The term structure of interest rates, or yield curve, shows how selected interest rates, for example selected benchmark rates of interest, vary according to the interest period or period of the loan. A yield curve can be drawn for a wide variety of financial instruments. The most widely analyzed curves are those for benchmark instruments, which are considered risk-free, such as short-term inter-bank loans between prime quality banks, for maturities up to about one year; government bond rates, for long-term rates.

Three competing theories have tried to explain the term structure of interest rates. They are the expectations theories, the liquidity preference, and the hedging-pressure or preferred habitat theories.

The expectations theory was advanced by Irving Fisher and developed by Hicks. The expectations theory assumes that the shape of the yield curve is explainable by the investors' expectations about future interest rates. Thus, if investors believe that the current level of

interest rates is too high and will more probably fall, they will prefer long-term securities to short-term. And assuming that both types of securities have equal yields, the long-term securities will yield a much higher rate over the longer period than short-term issues while the short-term securities have the prospect of being reinvested at the lower yields.

Hicks put the liquidity preference theory forward. He agrees that the shape of the yield curve bears closely with expectations; however, in a world uncertainly short issues are more desirable to the investor than long because they are more liquid and can be converted to cash at short notice without much loss of capital value when the rate changes unexpectedly. Long-term securities tend to fluctuate in price with significant unanticipated changes in the rates of interest; therefore long issues should yield more than shorts by the amount of risk premium. If no premium were offered, investors would prefer to invest in short-term issues in order to minimize the variability of the money value of their portfolios while borrowers would prefer long-term loans to ensure a steady source of funds.

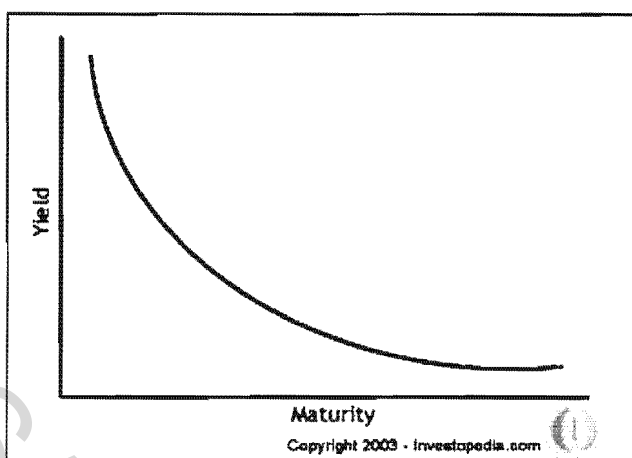
The hedging-pressure or preferred habitat theory is critical of the liquidity preference theory. It argues that liquidity is not the only additional influence on investment. Liquidity is of utmost importance to the commercial banker whose business is concerned mainly with short-term investment of its customers' temporary flow of deposits, but not for the life insurance company, which seeks to invest a flow of funds from the sale of long-term annuity contracts. In order to guarantee a profit, the insurance company will prefer long-term maturities because they facilitate the hedge against the risk of interest rate fluctuations. In the same way pension funds and retirement savers find long-term pure discount or zero coupon stocks to be preferable. Commercial bank and corporate investors hedge against risk by dealing in shorts. The hedging-pressure theory does not require premiums to be necessarily positive or an increasing function of maturity. Short and long markets are segmented and short and long yields are determined in the respective markets by supply and demand for funds. The leading exponents of the hedging-pressure or preferred habitat theory are Culbertson, Modigliani and Sutch

There are three main patterns created by the term structure of interest rates:

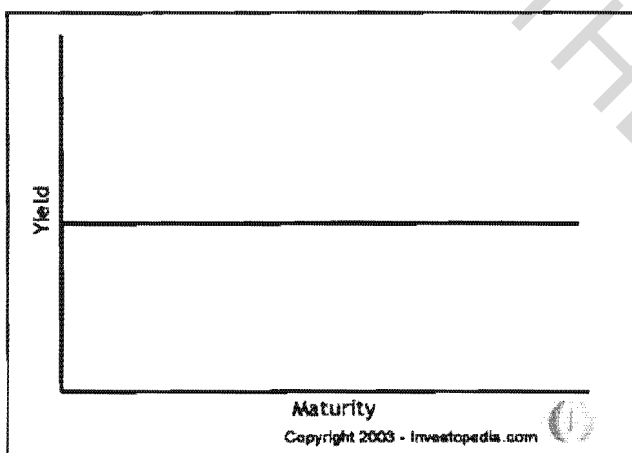
A Normal Yield Curve is the yield curve shape that forms during normal market conditions, wherein investors generally believe that there will be no significant changes in the economy, such as in inflation rates, and that the economy will continue to grow at a normal rate. During such conditions, investors expect higher yields for fixed income instruments with long-term maturities that occur further into the future. In other words, the market expects long-term fixed income securities to offer higher yields than short-term fixed income securities. This is a normal expectation of the market because short-term instruments generally hold less risk than long-term instruments: the further into the future the bond's maturity, the more time and therefore uncertainty the bondholder faces before being paid back the principal. To invest in one instrument for a longer period of time, an investor needs to be compensated for undertaking the additional risk.



The Inverted Yield Curve indicates that the market currently expects interest rates to decline as time moves further into the future, which in turn means the market expects yields of long-term bonds to decline.



A Flat Yield Curve indicates that the market environment is sending mixed signals to investors, who are interpreting interest rate movements in various ways. During such an environment, it is difficult for the market to determine whether interest rates will move significantly in either direction further into the future. A flat yield curve usually occurs when the market is making a transition that emits different but simultaneous indications of what interest rates will do: there may be some signals that short-term interest rates will rise and other signals that long-term interest rates will fall. This condition will create a curve that is flatter than its normal positive slope.



Section two: THE OVERVIEW OF GHANA MONEY MARKET

I-The Ghanaian Money Market

According to Incoom (1992), the money market in Ghana started as far back as 1896 when the first bank, the Standard Chartered Bank Ghana limited, then called the British bank of West Africa, was established to facilitate lending and borrowing of money. The Barclays bank was the next to be formed ten years later, and then the third bank, the Ghana Commercial Bank which was then the bank of the Gold Coast. In 1957, there was a need for a bank, which would perform supervisory and regulatory functions in the banking system as a whole and advise central government on economic monetary policies. Thus the bank of Ghana, which is the country's central bank, was established. The country's financial sector was expanded subsequently by the formation of other banks to facilitate money market operations in various sectors of the economy. These were the development investment merchant and rural banks. Other institutions namely, building societies, hire purchase companies, insurance companies, pension and social security funds gradually emerged as the country further developed.

These institutions together with the general public were the main participants of the money market, and money market operations were on strict banking lines. Both the public and corporate bodies with surplus funds lent money to the banks by opening savings and current accounts, and those who were in deficit borrowed from the banks, building societies and hire purchase companies. The government borrowed from the market through the sale of treasury bills and stocks as well as loans and advances. The various banks, through their operations, ended up carrying cash surpluses or shortfalls in the economy.

Since there was no avenue for inter-bank lending nor an organized body responsible for mobilizing surplus funds in the banking system and moving them to deficit areas, pressure was put on the central bank for the replenishment of shortfalls or management of investment surpluses. The controversial problem of providing more funds to the economy, but at the same time, restricting money supply can be resolved by mobilizing all available cash resources within the banking system and elsewhere and transforming them from idle to active money was being performed by BOG. The banking industry therefore saw the

need to set up a discount market in Ghana to take up the inter-bank money market function from central bank.

Consequently, a new company, Consolidated Discount House was opened in Ghana to perform this function of inter-bank lending on 30th November 1987, through the initiatives of eight banks and six insurance companies. The object for its establishment was to co-ordinate the rather disjointed and informal domestic money market. This meant that the discount house came into being to facilitate the growth and development of the banking system, and its main function was to mobilize funds in the banking system and move them to deficit areas. For that banks were expected to deposit their surplus funds with the discount house and also go to the discount house when they are in need.

To boost the money market, a second discount house was opened in June 1991 to offer financial intermediation among financial institutions and large corporations with short-term investible funds by efficiently providing them with avenues to invest in surplus cash. With the establishment of the discount houses, all the essential characters of the money market have been assembled to ensure an uninterrupted flow of funds throughout the banking system. But by this arrangement, the discount house took advantage of their unique position to charge higher interest rate on over night lending while paying very low rates on deposits from the banks. The banks at a point realized the unfair advantage that the discount houses were gaining and hence upon consultation among the banks, it led to the emergence of the inter-bank market, which has enabled the banks to meet their liquidity needs. Borrowing and lending between banks and discount houses are now firmly established as acceptable banking business, and the inter-bank market has been an important means by which Ghanaian banks adjust their liquidity positions.

II-Monetary policies, inflation and interest rates in the Ghanaian money market: A look back (1987-2002)¹

In line with monetary policies applied in most countries with relatively developed financial markets, the Ghana monetary policy is firmly directed towards the overall objective of

¹ Most of the literature review of this section come from to the bank of Ghana annual report since 1989 to 1998

creating and maintaining a stable financial environment. For central bankers this means an inflation rate that will have no significant effect on the decisions of the participants in the economy. In the case of Ghana, it is regarded as imperative to reduce inflation to a level that will be more or less in line with the average rate of inflation in the economies. The achievement of a sustained environment of financial stability is a prerequisite for the broader macroeconomic objective of economic growth, employment creation and redistribution. The best contribution that the central bank can make in support of these national objectives is to manage the monetary system of the country in the interest of overall economic development.

In order to achieve this objective, the primary objectives of monetary policy after liberalization in 1987 were to reduce inflation, promote mobilization of financial savings and permit interest rates to help in a more efficient allocation of financial resources. Before liberalization, interest rates were controlled by the central bank through the imposition of ceilings on deposits and loan rates. During this period, real interest rates were negative due to nominal interest rate ceilings and high inflation rates. However, these restrictions led to financial disinter mediation as savers and investors sought alternative outlets outside the formal financial system.

Financial sector liberalization aimed at allowing the commercial banks a free hand in their operations and thereby encourages competition in the banking system. Monetary policy also sought to reduce government borrowing from the banking system in order to free resources, which would be channeled to the priority sectors of the economy. Selective credit controls were removed, except the 20% mandatory lending to agriculture. The BOG performed its supervisory function more effectively within the framework of a new banking law (PNDC law 225), which came into force in July 1989.

Since the date, the BOG only determines the bank rate, which is the rate at which commercial banks borrow from the central bank. Commercial banks set their interest rates on the basis of the bank rate. They also take risk and transaction costs into consideration. Interest rates charged by commercial banks serve as income for the bank and a reward for assuming risk. The rates charged vary from loan to loan. Generally short-term loans have

lower interest rates than long-term loans. The size of a loan also influences the rates charged and rates can be negotiated; the larger the loan, the lower the rate and vice-versa. Some commercial banks try to vary the rates charged according to the credit worthiness of the borrower and this is done in order to eliminate the problem of default risk. Inflation has adversely affected the banks lending rate. The discount house rates are determined mainly through demand and supply factors. Rates go up when there is excess demand for funds and fall when there is excess supply. Government intervenes whenever it feels interest rates are not consistent with policy objectives, and it uses the liquidity position to raise or lower interest rates. Large companies and individuals with large funds can also negotiate for higher rates thus affecting discount house rates.

As part of the measures to contain inflationary pressures and ensure positive real interest rates, the bank of Ghana also influenced interest rates through the trading securities in the money market. The central bank introduced the weekly treasury bills tender in 1987. The tender was opened to banks, discount houses and the public at large, although the public had to submit their applications through the banks. The tender was operated side by side with the tap sales where customers could purchase bills directly from Bank of Ghana. The auction system of trading securities has a principal function of establishing market determined discount rate and interest rates, and this provides guidance on the direction of interest rate development in the economy. Financial instruments include 91-day treasury bills, 182-day treasury bills, 1-year note with attractive returns were sold to the banks and public to mop up excess liquidity in the economy. The funds mobilized through the sale of these financial instruments were sterilized thus moderating the expansion in money supply, which had been the major cause of inflation

The Bank of Ghana raised its rediscount rate in stages to around 35 percent by mid-1991, driving money market and commercial bank interest rates well above the rate of inflation, thus making real interest rates substantially positive. As inflation decelerated over the year, the rediscount rate was lowered in stages to 20 percent, bringing lending rates down accordingly. Despite offering some of the highest lending rates in West Africa (Mthuli Ncube, May 1998), Ghana's banks enjoyed increased business in the early 1990s because of high deposit rates. At the same time, more money moved into the banking system in 1991

than in 1990; time and savings deposits grew by 45 percent to ₵94.6 billion and demand deposits rose to ₵118.7 billion. Loans also rose, with banks' claims on the private sector up by 24.1 percent, to ₵117.4 billion. Banks' claims on the central government continued to shrink in 1991, falling to a mere ₵860 million from ₵2.95 billion in 1990, a reflection of continued budget surpluses. Claims on non-financial public enterprises rose by 12.6 percent to ₵27.1 billion.

It followed that regardless this situation; interest rates have been excessively high during 1990 to 1997. These rates fell from their 1990 high in 1991 and started a steep ascent recovering in 1994 only to shoot up again the following year, peaking at an all time high in 1997. The bank rate stood at 45%, 91 day treasury bill rates was 42.72% and that of the 182 day T'bills and 1 year notes were 37.70% and 42.80% respectively. These high interest rates have been attributed to excessive government borrowing from the public and the safe haven T'bills provide to the banks compared to the high risky private sector.

The 1998 economic program envisages a tight monetary policy to support the government's inflation target. During the first half of 1998, the growth in broad money was 5.4 percent, considerably too high. This development was due to an increase in the money multiplier as the Bank of Ghana has continued to maintain reserve money within the limits of the program. The higher-than-expected multiplier results from increased deposit mobilization efforts by the banking system as reflected in the decline of the currency-to-deposit ratio. Interest rates have been slowly declining since the beginning of the year. The interest rate on 91-day treasury bills, a key reference rate for the money market, has fallen from 42½ percent at the end of 1997 to 33½ percent at end-July 1998. The real interest rate on the 91-day treasury bill rates has declined from 18 percent at the end of 1997 to 10 percent at end-September 1998. The Bank of Ghana expects that the interest rates will show a declining trend during the remainder of the year, and is prepared to reduce its rediscount rate (currently at 45 percent) as monetary conditions permit.

The monetary policy of Ghana remains focused on achieving domestic price level and exchange rate stability as key elements in an environment conducive to sustainable economic growth. The BOG maintains indirect monetary policy instruments, namely open

market operations and repurchase agreements (REPOs) as its main policy instruments. A centralized book-entry system for treasury bills was completed in July and a master repurchase agreement was formally introduced in August 1998 setting the stage for a more active use of repurchase operations by the Bank of Ghana and market participants. However, control of growth in money supply and liquidity management has continued to be made difficult, as the expansion in monetary aggregates has generally exceeded targets.

A new bank of Ghana Act was promulgated at the start of 2002, conferring operational independence on the BOG and assigning the formulation of monetary policy to a Monetary Policy Committee. In 2002, the replacement of the bank rate by the stable prime rate² (maintained at 24.5 per cent) led to a decline in the entire range of interest rate. Average commercial banks lending rates fell from 46 per cent in 2001 to about 36.2 per cent in 2002. The 91-day Treasury bill rate fell from 26.9 per cent at the end of 2001 to 24.9 percent at the end of 2002. However, 2002 continued to experience a widening gap between deposit rates and lending rates. This was indicative of the marked risk and uncertainty inherent in the economy, as well as the continuing inefficiencies in the banking system.

III-Current situation of the Ghanaian money market

Money market institutions in Ghana are made up of borrowers and suppliers. The borrowers or users of funds include government, banks, non-bank financial institutions and large companies and individuals. The suppliers of funds or lenders include all economic units that can withhold current spending and employ interest bearing assets in place of non-earning idle cash balances.

The banking system in Ghana presently consists of the Bank of Ghana as the Central bank and eighteen different banks categorized as follows: eight commercial banks, four universal banks, three development banks and three merchant banks. There is also an apex institution known as the ARB. Apex bank licensed by the bank of Ghana to oversee the operations of 117 rural/community banks licensed as unit banks in the country.

² The prime rate is an instrument to signal the bank's assessment of inflationary pressure and its stance on monetary policy

The operations of banks in the country are complemented by other financial institutions such as three money market financial institutions (discount houses), other non-bank financial institutions made up of two building societies, nine savings and loans companies, fourteen finance companies, six leasing companies, two venture capital funding, brokerage firms and hire-purchase companies. In addition there is a stock exchange, which provides the platform for secondary dealings in the equities of listed companies and a number of bureaux de change.

The major money market institutions in Ghana are the bank of Ghana, commercial banks, merchant banks, development banks, and discount houses.

III.1-Central Bank

Bank of Ghana (BOG) derives its authority from the BOG Act, 2002 (Act 612), the banking law and the 1992 constitution of the Republic of Ghana. The BOG Act, 2002 (612) differs from the old BOG law mainly in respect of the level of autonomy and independence granted to the bank in setting monetary policy for the country and managing the level of liquidity in the economy.

The central bank primary function is to regulate the money and credit in the national economy in such a way to influence aggregate demand. BOG is both a player and a supervisor in the money market. These powers and functions of the central bank have been specified in the banking law. It is important to note that BOG has access rights to the accounting records, credit files and other document of banks operating within the jurisdiction of the Ghana companies Code and the banking law to enable it to discharge its supervisory responsibilities.

The Central Bank controls the credit base of the banks by requiring them to invest a proportion of their funds in reserve assets. It also performs a lender-of-last resort function by providing cash to the banks when they are short of funds. Through these actions, the central bank influences the liquidity of the money market. The BOG participates in the money market by selling and buying treasury bills, bank of Ghana bills and commodity bills.

III.2-Commercial Banks

The eight commercial banks in Ghana participate in the money market by providing an avenue for lending and borrowing of money. The principal function of commercial banks is to accept deposits and make loans to the public and business firms. Through this, they mobilize idle funds and also provide liquidity for the economy and they are the largest suppliers of short-term loanable funds to businesses. They use depositors' funds or create their own debt instruments like certificates of deposits. They also purchase Bank of Ghana and government securities as part of their investments. In addition, they act as intermediaries for the central bank by providing a secondary market for the trading of BOG instruments. The activities of commercial banks are regulated by the central bank

Banks have significantly changed their attitudes to the money market as customers become more knowledgeable and demand greater sophistication in products and services. In recognition of the need, they improve the quality, efficiency and timeliness of services delivery in order to maintain and grow their market shares.

III.3-Merchant Banks

Shekhar (1998) defines a merchant bank as an institution which centres its operation on all or most of the following activities

- i) Corporate financial advice, on such diverse matters as new share and bond issues, capital reconstruction, mergers and acquisitions;
- ii) The taking of deposits and currency money market operations including foreign exchange dealings;
- iii) Medium term lending and syndication of loans;
- iv) Acceptance credits and all form of export finance;
- v) The holding and dealing in quoted and unquoted investments;
- vi) Fund management on behalf of clients, most typically pension funds, unit trusts, investment trusts and wealthy individuals.

Traditionally, the main business of merchant bank has been concerned with acceptance credit for the financing of international trade and the raising of loans for overseas borrowers by new capital.

The three merchant banks in Ghana are Cal Bank Ltd., First Atlantic Merchant Banks Ltd. and Merchant Bank Ltd.

III.4 Development Banks

According to Nicholas Bruck (the Ghanaian banker, Vol. No 4, 1996), in development bank, the concept of "development" is combined with the concept of "Bank" to achieve the construction of a mechanism for the financing and implementation of development projects. This mechanism has the double objective of implementing projects that make a contribution to the development of a country and that earn the country's scarce financial resources.

In Ghana, the three developments banks are Agricultural Development Bank Ltd., Prudential Bank Ltd. and National Investment Bank Ltd

III.5-Discount Houses

The three discount houses are Consolidated Discount House; Fidelity Discount Houses and Securities Discount Companies. There are specialized financial institutions that deal with commercial, merchant and development banks, building societies, insurance firms and other financial institutions, large companies and individuals. It accepts money at "call" from these institutions and invests these funds in short-term money market securities. It therefore acts as a "banker to banks" and it is used as a controlling point in the entire financial system.

Money market dealing between the discount houses and its clients are conducted over the phone between dealers who are known to and trusted by each other. Deals conducted by telephone are followed by exchange of written statements between the parties. As a rule, the discount house operate on a "borrow short, lend long" principle. Their deposit maturity levels are concentrated on the "call", "demand" "short" areas. Most often, these maturities range from none to seven days and the maximum maturity is usually three months.

The discount houses are regulated by the BOG and according to guidelines issued by the bank. The discount houses are under absolute obligation to repay on demand whatever is required. It therefore operates by striking a balance between depositors' need for liquidity and shareholders' expectations of profit maximization.

The role of the discount houses in the money market, as has already mentioned, is to provide an avenue for inter-bank activities to mobilize funds to deficit areas. Presently, the discount houses have a sizeable portfolio of assets including financial instruments such as treasury bills, bank acceptances, government stocks, negotiable certificates of deposits and call money.

IV-Ghana money market instruments

In Ghana, the available money market instruments are the Bank of Ghana bills/bonds, which are monetary policy instruments; Government of Ghana bills/notes, which are fiscal, and monetary policy instruments; and commodity bills which are issued on behalf of various institutions for the finance of real sector activities. Other instruments are banker's acceptances, commercial paper, call money, promissory notes, certificates of deposits, etc. With the exception of instruments with maturities of one or more years, all the securities are traded at discount and securities of one or more years are traded at interest. Instruments of less than one year maturity issued by the government are called bills and instruments with maturity of one year are referred to as notes. These instruments are traded in the primary market or in the secondary market. The primary market is for new issues of debt instruments while the secondary market is where subsequent trading of primary issues by discount houses and commercial banks takes place.

Although money market instruments possess the common characteristic of liquidity, they do not possess identical investment characteristics: they differ in risk, maturity, tax status, legal status and marketability. The existence of these differences gives rise to a structure of money market rates, rather than of a single money market rate of interest. The differentials among the various rates tend to change with variations in the supply of and demand for each of the money market instruments.

IV.1-Bank of Ghana bills and bonds

Bank of Ghana bills and bonds are monetary policy instruments with different maturity profiles. The 14-day Bank of Ghana bill, 28-day Bank of Ghana bill, and a 56-day Bank of Ghana bills are the main instruments available for trading. The BOG Bills are traded at a weekly auction held at the bank. The bank uses these bills to influence the money stock; for example, to increase the money supply, the central bank buys bills and to decrease the money supply, it sells bills. Securities are sold at the auction and the outstanding issues are subsequently underwritten by the discount houses. A prospective investor in the money market channels his/her transactions through his/her bankers to the central bank and the returns are automatically paid to the account of the investor by the central bank through the bank from which the securities are purchased. No brokerage fees are charged investors; hence they incur no cost in the submission and processing of their applications to their banks. This is to prevent transfer of these costs to the general public and encourage trading in the instrument. In addition the primary dealers are paid a brokerage fee equivalent to ¼% of the total amount submitted for an auction. This therefore encourages primary dealers to submit as many requests as possible.

IV.2-Government debt instruments (Treasury bills and notes)

The Government of Ghana securities are fiscal and monetary policy instruments. They are the 91-day treasury bills, 182-day treasury bills, 1-year Treasury note. The Treasury bill is the largest single instrument of the money market. It provides a very important haven for temporary idle funds held by banks and businesses to meet possible liquidity needs and an important source of borrowed funds for the government.

The trading of treasury bills in the money market is the major tool for effecting changes in the short-term nominal interest rates and money stock. The central bank maintains and controls the money supply in the economy by primarily using open market operations that usually involves the sale and purchase of treasury bills. The monetary authorities sell treasury bills to mop up excess liquidity in the economy when the object of monetary policy is to reduce money supply. The mobilized funds are usually in the form of bank deposits. On the other hand, when there is a need to increase liquidity, government buys treasury bills and the

sellers of these bills are usually paid through the bank account and this increases the ability of the banks to loan money. To increase money supply, the government does not actually buy the treasury bills that have been issued, but instead decides not to issue more treasury bills as the existing ones mature.

The Treasury bill is the obligation of the government to pay the bearer a fixed sum at a specified date. Treasury bills are auctioned weekly at the BOG and the public is invited to quote their own rates taking into consideration the bank rate within set ceilings. Treasury bills are considered to be risk free because they are government obligations and because of their short-term nature, large interest rate movements result in relatively small changes in the price of treasury bills.

IV.3-Call money

These are short-term money market instruments issued by the discount houses to mobilize surplus funds in the economy. The discount house accepts money at “call” and term “basis” from other financial institutions, large companies and individuals. This money is made available to finance industry through securitization. The money is converted to marketable securities and sold to industries. Funds at call usually attract interest and are fully secured with negotiable securities in excess of deposits. Money at call matures overnight or up to seven days, and the discount houses pay competitive rates of interest on call money. With increased competition among bank for deposits, the banks also now provide call deposit products. This is in line with the practice where banks are now depending on purchased funds as against core deposits. To some extent, this practice can be attributed to the fact that most corporate customers have competent treasurers who will not allow their funds to lie idle.

IV.4-Fixed deposits

Fixed deposits are amounts of money deposited with commercial bank for a specified period of time; there are the 1-month, 3-months, 6-months, and 12-months fixed deposits. Interests are earned only when the customer holds the instrument to maturity; otherwise there is a penalty for early withdrawal. This allows the banks flexibility in their management of liabilities. However, with the increasing concern to maintain customers, the banks will pay

interest for a fixed deposit of 6 months that has traveled for 3 months and over. The rate applied in this case would be that applicable to the 3 months fixed deposit. This principle applies to the one year fixed deposit to.

IV.5-Savings deposits

Savings deposits are regular savings and interest bearing accounts. Interest rates paid on savings deposits are also determined by the commercial banks, usually based on demand and supply factors and transaction costs. Individuals and non-profit organizations own most savings deposits.

DATA ANALYSIS, FINDINGS, CONCLUSION AND RECOMMENDATIONS

Section one: DATA ANALYSIS

I-Bank of Ghana's money market intervention

It has been the belief of many people that the central bank (Bank of Ghana) should conduct an active interventionist monetary policy even though most countries are abandoning other forms of state intervention in their economies such as price controls, income policies, and industrial planning. These and other forms of intervention such as agricultural policies waste economic resources and disturb markets. Present day liberal economists believe that the Adam Smith's invisible hand should be allowed to operate in the economy so that there can be efficient allocation of resources, better pricing and proper utilization of scarce resources. Unfortunately, when it comes to the question of monetary policies, people who hold the above view on the economy do not stand by it.

In Ghana, the main function of the central bank is to exercise monetary control. The central bank implements monetary policy by directly influencing short-term rates. Bank of Ghana (also known as the "bank of last resort") influences the demand, supply and, hence, price of money and credit in order to direct the nation's economic objectives. It is by exercising this monetary control that it becomes imperative that Bank of Ghana intervenes on the money market. These monetary policies have not produced many results in the past in Ghana, though recently we are seeing a lot of results.

The establishment of Monetary Policies Committee (MPC) of the Bank of Ghana in September 2002 moved the central Bank closer to an "independent" status, and with that a more focused approach to fighting inflation. The MPC meets every two months to review the economy's performance and to set the tone for policy management by positioning the prime rate. The prime rate acts as a benchmark by which other rates of interest are gauged. In addition, the movement of the prime rate acts as the barometer by which the tempo of economic activity is measured. Thus an increase in the prime, while consistent with tight

monetary policy, essentially gives the signal of excessive demand pressures in the economy which need to be slowed down; and vice versa. In addition to the prime rate, the Bank of Ghana continues to use its traditional tools for monetary policy in its operations, viz, the prudential requirements, the open market operations (OMOs), the Repurchase Agreements (Repos) and the Reverse Repos.

The reserve requirement is the amount of money that a depository institution is obligated to keep in Bank of Ghana in order to cover its liabilities against customer deposits. The Board of Governors decides the ratio of reserves that must be held against liabilities that fall under reserve regulations. Thus, the actual cedis amount of reserves held in the central bank depends on the amount of the depository institution's liabilities (9 percent primary reserve and 15 percent secondary reserve).

The Bank of Ghana maintains indirect monetary policy instruments, namely OMOs, the Repos and the Reverse Repos as its main policy instruments, which enable the BOG to fine-tune the level of reserves in the banking system.

Open market operations are essentially the buying and selling of government-issued securities (such as 91-day Treasury bills) by the central bank. The short-term purpose of these operations is to obtain a preferred amount of reserves held by the central bank and/or to alter the price of money through the Bank of Ghana prime rate. When the Bank of Ghana decides to buy T-bills from the market, its aim is to increase liquidity in the market, or the supply of money, which decreases the cost of borrowing, or the interest rate. On the other hand, a decision to sell T-bills to the market is a signal that the interest rate will be increased. This is because the action will take money out of the market (too much liquidity can result in inflation), therefore increasing the demand for money and its cost of borrowing.

Under a repurchase agreement, the BOG buys T-bills from the Deposit Money Banks (DMBs) and they, in turn, are contractually obligated to buy these bills back (repurchase them), within a short period of time, typically one day but within three days. The interest rate on these is fixed at 1% above the prime rate.

The purchase of T-bills from the DMBs by the BOG injects reserves into the banking system thus increasing the stock of Reserve Money. When the DMBs close out the repos by repurchasing the T-bills, their deposit holdings at the BOG are debited, reducing DMBs reserves and hence the stock of Reserve Money.

In a "reverse repos" the BOG sells T-bills from its own account. The accounts of the transacting DMBs at the BOG are debited as appropriate. Reserves of DMBs are reduced and in the process the stock of Reserve Money falls. When the BOG buys back these T-bills in the specified period, typically one to three days, reserves of DMBs and stock of Reserve Money correspondingly rise. The interest rate on these is fixed at 2% below the prime rate.

Thus repos and reserve repos alter the stock of Reserve Money on a temporary basis. This contrasts with the outright sales and purchases of T-bills at the OMO which effect more permanent changes (1 to 3 months) in the reserves of DMB and the stock of Reserve Money correspondingly rise. Changes in Reserve Money are used by the central bank to induce changes in money supply or to keep money supply in conformity with policy objectives.

Operationally, the BOG calls DMBs each morning to determine their reserves positions. This provides the Repos Committee with information on the overall stock level or reserves of, and its distribution among, the DMBs. By noon, the BOG would have determined the amount of repos it will accept, zero in the event of overall adequacy and only imbalances among the DMBs, and otherwise a value equal to the system-wide deficiency. In addition, the BOG sets a ceiling (not revealed to the DMBs) for each DMB. Approval must be obtained from the Governor before the BOG would accept repos from a DMB in excess of its ceiling.

If such approval is not granted, the DMB would have to use the secured lending facility, which carries a penalty (interest charge above the repos rate) to obtain the additional reserves needed. If any DMBs shows a marked tendency to have frequent recourse to this lending facility, that in itself signals to the BOG that the DMB concerned may be acting imprudently. The BOG expects and encourages DMBs to manage their reserves needs by dealing with each other.

II- Interest rates and money market

Since the establishment of the Monetary Policy Committee, interest rates have gained importance as instrument of monetary policy. Signals provided by the prime rate set by the Bank of Ghana appeared to have been followed by other market rates of interest in the money market. The Treasury bill is issued by the government and its basic characteristic is that it is a risk free. It is a market rate, which is enjoyed by everyone. So for this analysis, we want to dwell more Treasury bill rate.

The downward adjustments in the prime rate in 2004 saw that rate reduced from 21.5 percent at the end of December 2003 to 18.5 percent by end of May 2004. As the prime rate moved it signaled to other rates on the money market to follow suit. Thus, the 91-day T-bill rate went up from 26.81 percent in January 2003 to 35.81 percent in July 2003 and after that decreased to 16.47 percent in January 2004. Thereafter, the rate of the 91-day T-bill was fairly stable for the rest of the year. The lending rate however showed movements reflecting liquidity condition in the market. It increased in the beginning of the year 2003 from 34 percent to 36 percent. After that, the lending rate fell from 36 percent in April 2003 to 32.75 percent in December 2003 and continued to decline during the year 2004 by 32 percent in February to 25.75 in December 2004. The rate of inflation declined further in September and December 2004. It fell from 22.4 percent at the end of January 2004 to 12.6 percent at the end of November 2004, and again went down to 11.8 percent at the end of December 2004.

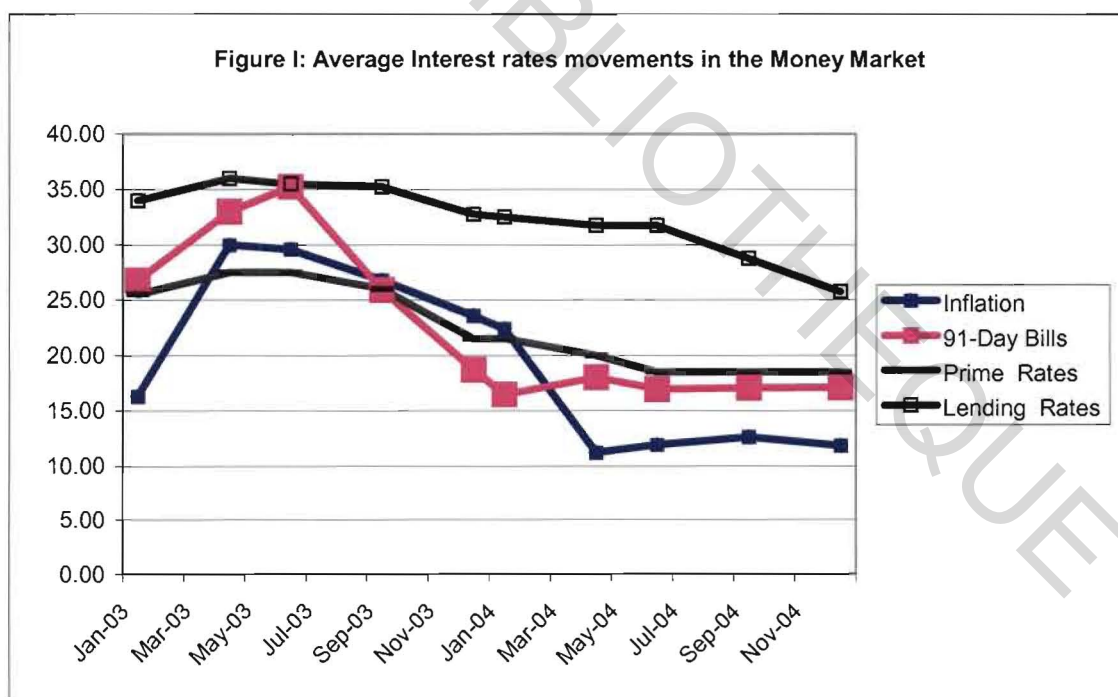
The trend analysis of the rates points out some issues in the market.

First, before September 2003, the risk free 91-day T-bill rate was above the prime rate. This situation usually happens when the government makes the rate on the debt instrument (91-day T-bill) more attractive to raise funds from the public to meet its budget deficit. This, therefore, might have caused an increase in inflation rates from 16.30 percent at the beginning of January 2003 to 29.60 percent at the end of June 2003.

Secondly, the rate of inflation peaked at 30 percent in April 2003 and declined gradually to 11.8 percent at the end of December 2004. The gradual reduction in the rate of inflation can

also be link to the decrease in the 91-day T-bill rate and the prime rate during the year 2004. This reasonable stable rate of inflation could be attributed to a strong monetary and fiscal stance of the government.

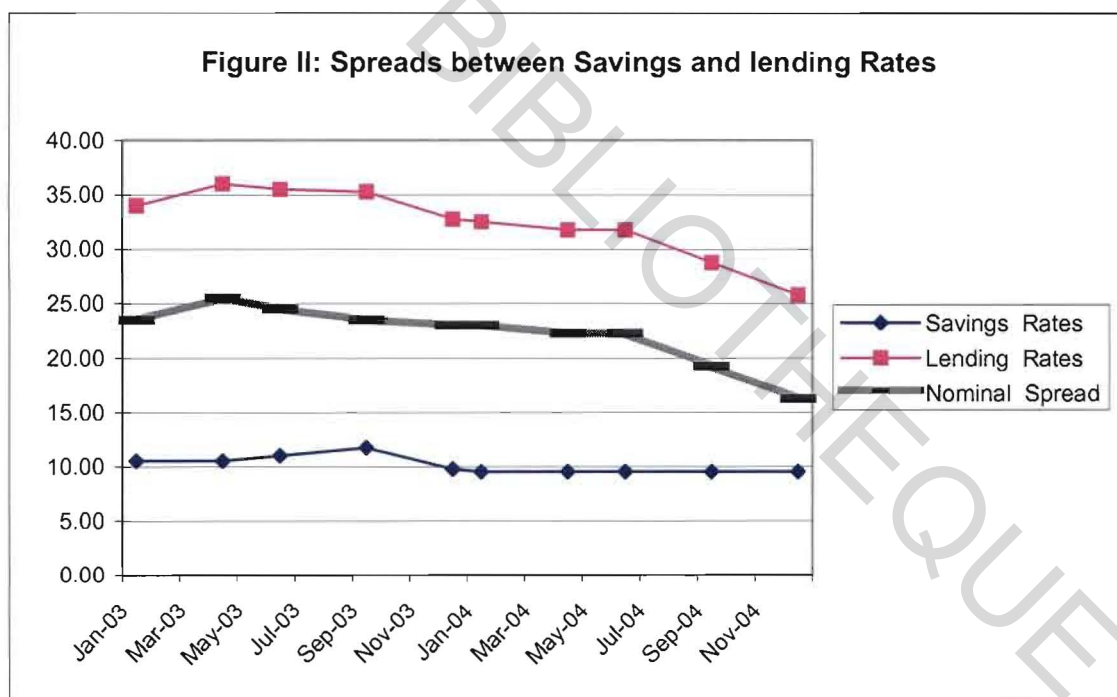
And thirdly, during the review year, the lending rate was above the 91-day T-bill, the prime rate and the inflation rate. The banks, in the fixing their interest rates, therefore take cognizance of the Treasury bill rate. This is because when the banks granted loan to a customer or other entity, it carries more risk which should attract risk premium above the risk free rate (Treasury bill rate) being provided by government at the market. The prime rate is also the rate in which the BOG lends money to the banks. For that, the banks using this prime rate as a benchmark have to fix the lending rate higher than the prime rate. In a situation where the rate on T-bill is higher than the prime rate, as happens in the money market (Figure I) than the prime rate; the 91-day T-bill rate dwarfs the prime rate and becomes the benchmark for the banks.



From the Figure II below, it can be said that the rates on saving deposits declined albeit at varying speeds. For instance, from 10.5 percent in April 2003, savings deposits increased to

11.75 percent in October before declining to 9.50 percent in January 2004 and thereafter, stayed at this rate for the rest of the year.

The spread between deposit rate and lending rate averaged 22.24 percent throughout the review years. Figure II below illustrates the spread between the real deposit and lending rates. There is an obvious indication from the diagram that this gap has been widening over the period 2003-2004. The size of the spread is an indication of a number of factors including inefficiencies in the financial system. Hicks (1965), has indicated that the efficiency of financial systems should be judged by the size of the spread between the deposit and lending rates. The smaller the size, the more efficient the financial system is. This high spread is likely to discourage savings, investments and growth and are also indicative of high transactions costs of the deposit money banks.



Another factor, which can explain this high spread between average deposit rate and average lending, is inflation. From January 2003 to December 2004, inflation and nominal spreads between deposit rate and lending followed the same movement by increasing in January 2003 to April 2003 and thereafter decreasing until December 2004. The correlation between inflation and this nominal spread under the review years is 0.72, which confirmed the

assertion above. The higher spreads was used as a hedge against inflationary pressures in the Ghanaian economy.

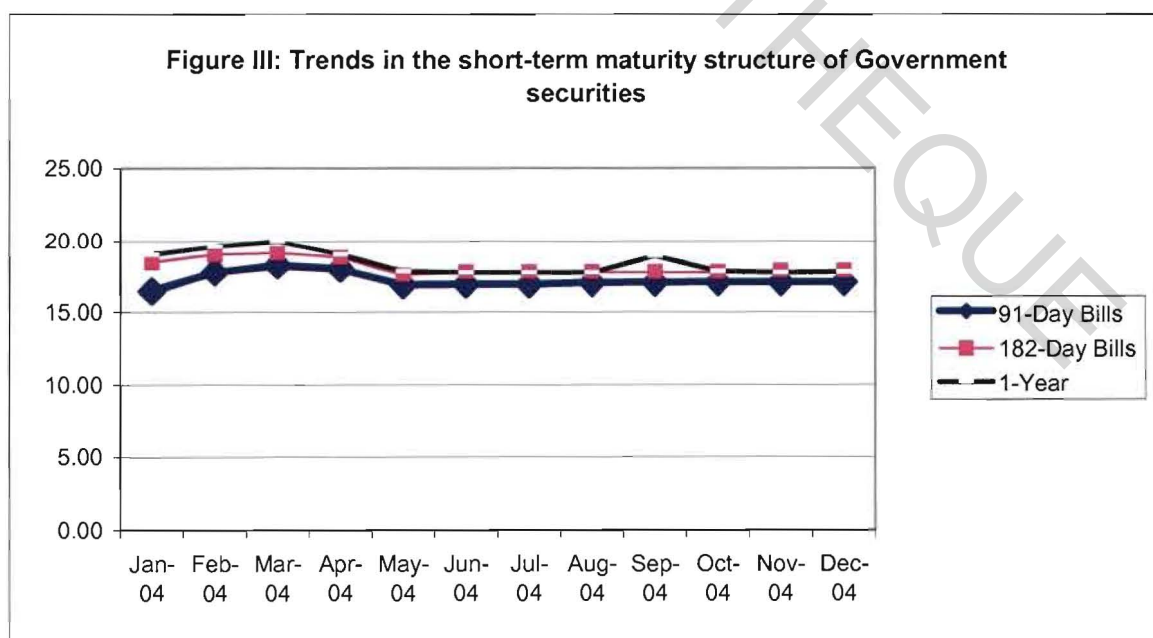
Table I: Inflation rates and nominal spreads between savings and lending (percent)

Period	Jan-03	Apr-03	Jun-03	Sep-03	Dec-03	Jan-04	Apr-04	Jun-04	Sep-04	Dec-04
Inflation	16.3	30	29.6	26.8	23.6	22.4	11.2	11.9	12.6	11.8
Nominal Spreads	23.5	25.5	24.5	23.5	23	23	22.25	22.25	19.25	16.25
Correlation:	0.72									

III-Government securities market

III.1- Behaviour of T-bill and note in the money market

The short-term government securities markets include the 91-day T-bill, the 182-day T-bill and the 1-year note. During the year 2004, the government securities markets fluctuated between 15 percent and 20 percent and remained relatively stable. The 91-day T-bill rate rose from 16.6 percent in January to 18.3 percent in March there after it fell to 16.9 percent in July. It rose again to 17.08 percent at the end of the year. During the year, the 91-day T-bill rate was below the 182-day T-bill and 1-year note rates. Those rates fluctuated closely during the year.

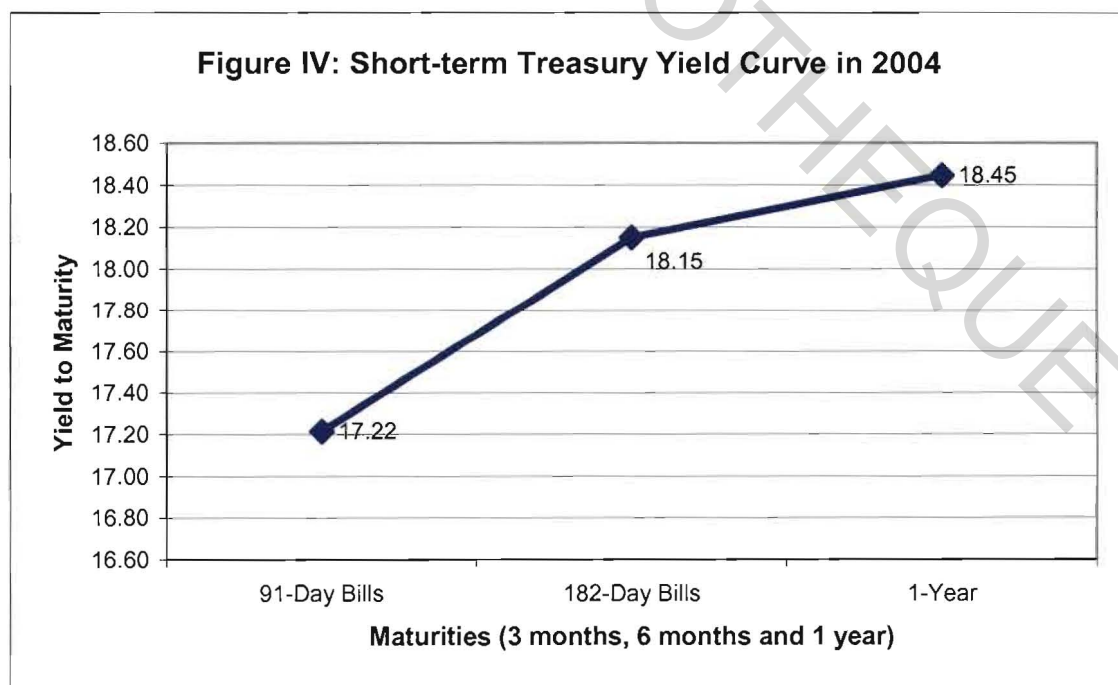


III.2-The term structures of interest rates: The Ghanaian Treasury bill yield curves

The short-term Ghanaian Treasury Yield Curve illustrated below is a normal one. This means that interest rates normally are higher for 1-year note than 182-day T-bill and more than 91-day T-bill.

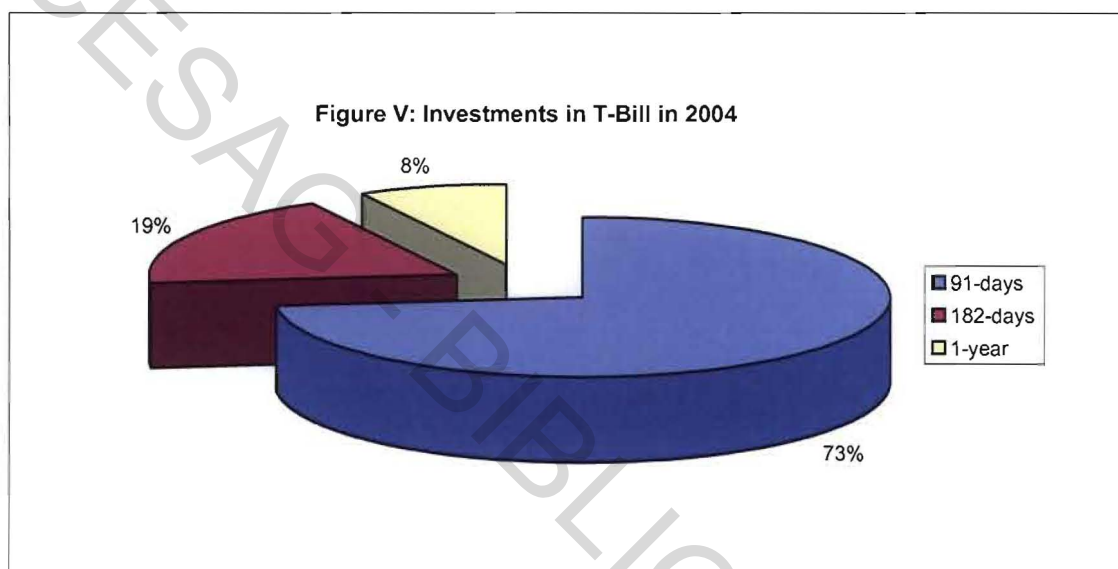
With the expectations theory, it can be said that long-term rates embed a prediction of future short-term rates. The 91-day T-bill is 17.22 percent, the 182-day T-bill is 18.15 percent and the one-year yield is 18.45 percent. If an investor were going to invest in the Ghanaian Treasury bill with a three-year time horizon and if interest rates were going to hold steady, he must do much better to go straight into buying the 1-year note (which has a much higher yield) instead of buying the 91-day T-bill and rolling it over into another 91-day T-bill.

This normal Yield Treasury curve can be a strategy way for the Government of Ghana to encourage investors to invest in the 1-year note. The sale of more 1-year note securities by the government can permit it to finance its budget deficits well than selling the 91-day, which is too short.



III.3-Investment in T-bills and interest rates

Despite the normal Yield Curve, the maturity structure of the stock of Government securities has been dominated by the 91-day treasury bills. For the year 2004, the sale of Government securities was respectively in 91-day T-bill 73 percent, in the 182-day T-bill, 19 percent and the 1-year note at 8 percent.



During the year, the holding structure of Government securities show different investments in the short-term T-bill and note. This partly reflected investor's preference for short-term assets.

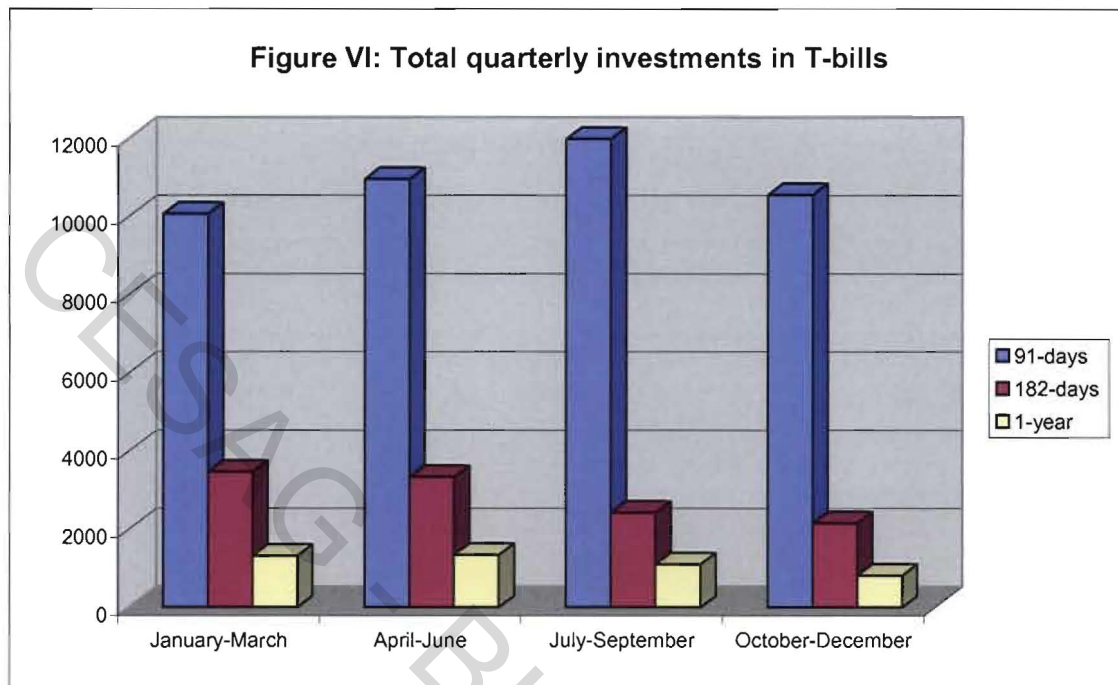
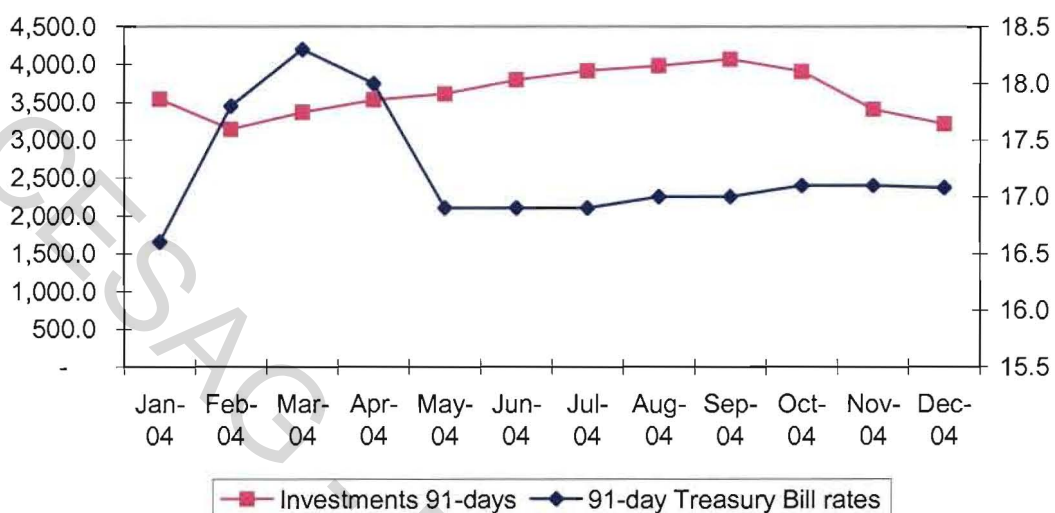


Figure VII indicates that supply of loanable funds is not determined by the interest rates. In January 2004 while the rate offered on the 91-day T-bill was 16.6 percent as much as 3,541 billion cedis was offered to the government. However in March 2004 the interest rate moved to 18.3 percent with a corresponding supply of loanable funds of 3,368.8 billion cedis. It is also worth mentioning that in September 2004 even though the rate dropped to 17 percent, investors offered as much as 4,069.4 billion cedis.

This is to suggest that because of the confort offered by government securities, investors are always prepared to put their monies in them. The fact that it also offers them the necessary liquidity, their decisions to invest is not determined by the rate available.

Figure VII: Trends in the maturity structure of stock of 91-day T-bill and the interest rate



Section two: FINDINGS, CONCLUSION AND RECOMMENDATIONS

I-Findings and conclusion

The dissertation was about the behaviour of interest rates structure in the Ghanaian money market. It looked at the extent to which interest rates have influenced the level of money market activity and its effects on the achievement of economic policy objectives of the country. To achieve the research objectives, the following research questions were asked:

- i)-What is the role of Bank of Ghana in monitoring the money market?
- ii)-Does the behaviour of interest rates could be explained by demand for and supply of money?
- iii)- Does the high inflation in Ghana affects the lending rates?
- iv)- What are the direction and future trends of the short term yield curves of treasury bill?
- v)- How does changes in interest rates motivate people to hold money or save in the money market?

The findings of this study include the following:

- a) Interest rates in the Ghanaian money market are influenced mainly by the monetary policy stance of the Bank of Ghana. Monetary policy decisions involve setting the prime rate, which influence interest rate on overnight loans in the money market. The instruments currently used by the BOG include Reserve Requirements, Open market operations and Repurchase Agreements. The BOG also uses the prime rate, which is a benchmark interest rate to reflect market forces and to serve as the basis for all other rates. Other interest rates in the market are influenced by the prime rate to varying degrees, so that the behaviour of borrowers and lenders in the Ghanaian financial markets is affected by monetary policy.
- b) The behaviour of interest rates in the money market is influenced more by the supply factors than by demand factors. Since the establishment of the Monetary Policy Committee, the Bank of Ghana meets every two months to review the performance of the economy by focusing on achieving financial stability which includes domestic price level and exchange rate stability. Interest rates are being used

as a tool for monetary policy together with other main policy instruments such as open market operations, and repurchase agreements, etcetera to control the growth of the money supply.

- c) The lending rate in Ghana is the rate above inflation, the prime rate, and the Treasury bill rate. It is the rate that feeds into the real earnings of the banks. The high spreads between lending and deposits rates were used as a hedge against inflationary pressures in the Ghanaian economy. But with the fall of inflation in 2004 coming, the lending rate has declined, albeit at a very slow pace.
- d) The 2004 short-term Treasury yield Curve, which depicts the term structure of interest rates can be used as a forecasting tool by investors. From the analysis of this Yield Curve, it is observed an upward-sloping Yield curve, indicating that future short-term rates on treasury bills would rise. Investors who study the Yield curves could make forecasts of future interest rates and be able to take advantage of profitable opportunities.
- e) Finally, the study revealed behaviour of investors when it comes to government securities. From the studies, it was observed that the decision to invest in the T-bills is interest-inelastic. The investor invest in those T-bills because they are risk-free and more liquids and not because the interest that are being paid is attractive compared to other opportunities in the financial market.

II-Recommendations

On the basis of these findings, the following recommendations are offered, The reforms in the Ghanaian financial sector have been accompanied by sound macroeconomic, monetary and fiscal policies designed to attain low and sustainable rates of inflation (76% in December 1996 and 11.8% in December 2004). In addition the competitiveness of banks and other financial institutions have been keen leading high savings mobilization. The urgent task facing Ghana is to continue to stabilize its macroeconomic environment in order to create an enabling environment for further savings

mobilization. This implies adopting policies that lead to low inflation and low fiscal deficits. These are essential for financial market efficiency and increase the public confidence in the financial system. In this way, an active money market could be developed and adequate competition could be created to eliminate distortions and facilitate money market activity.

From figure IV, the Ghanaian financial market has a normal Yield Curve. However for a rate of 17.22 percent for the 91-day T-bill and 18.45 percent for 1-year note, the spread is just about 1.25 percent. This spread in my view is not attractive enough to move investors from the 91-day T-bill to the 1-year note. If we consider the liquidity that the 91-day T-bill offers its holders. They will need a higher margin to encourage them to go for the 1-year note. On the other hand, it may be a deliberate policy of the Government to attract short-term investment because they anticipate a fall in inflation and subsequently a fall in interest rate. They will therefore not want to lock their funds in long-term investments. But for better planning, the Government should encourage long term borrowing by making the 1-year note more attractive.

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ANNEX 1: AVERAGE INTEREST RATE MOVEMENTS (IN PERCENT)

Period	Inflation	91-Day Bills	Prime Rates	Savings Rates	Lending Rates	Nominal Spread
janv-03	16,30	26,81	25,50	10,50	34,00	23,50
févr-03	29,40	27,38	25,50	10,50	34,00	23,50
mars-03	29,90	28,35	27,50	10,50	34,00	23,50
avr-03	30,00	33,01	27,50	10,50	36,00	25,50
mai-03	29,80	33,53	27,50	11,00	35,50	24,50
juin-03	29,60	35,27	27,50	11,00	35,50	24,50
juil-03	29,00	35,81	26,00	11,75	35,50	23,75
août-03	27,70	27,01	26,00	11,75	35,50	23,75
sept-03	26,80	25,94	26,00	11,75	35,25	23,50
oct-03	24,60	25,60	24,00	11,75	35,25	23,50
nov-03	23,80	21,01	24,00	11,00	35,25	24,25
déc-03	23,60	18,71	21,50	9,75	32,75	23,00
janv-04	22,40	16,47	21,50	9,50	32,50	23,00
févr-04	11,30	17,78	20,00	9,50	32,00	22,50
mars-04	10,50	18,26	20,00	9,50	31,75	22,25
avr-04	11,20	18,01	20,00	9,50	31,75	22,25
mai-04	11,20	16,89	18,50	9,50	31,75	22,25
juin-04	11,90	16,94	18,50	9,50	31,75	22,25
juil-04	12,40	16,92	18,50	9,50	28,75	19,25
août-04	12,90	17,04	18,50	9,50	28,75	19,25
sept-04	12,60	17,05	18,50	9,50	28,75	19,25
oct-04	12,40	17,08	18,50	9,50	28,75	19,25
nov-04	12,30	17,07	18,50	9,50	28,75	19,25
déc-04	11,80	17,08	18,50	9,50	25,75	16,25

GHANA COMMERCIAL BANK LTD. : SELECTED ECONOMIC INDICATORS

AVERAGE INTEREST RATE MOVEMENTS AND INVESTMENTS IN TREASURY BILL

Non-Bank Holdings of T-Bills	déc-03	janv-04	févr-04	mars-04	avr-04	mai-04	juin-04	juil-04	août-04	sept-04	oct-04	nov-04	déc-04
91-days in billion cedis	4 101,8	3 541,0	3 147,0	3 368,8	3 533,7	3 613,5	3 797,7	3 917,4	3 983,2	4 069,4	3 909,9	3 409,8	3 214,7
182-days in billion cedis	1073,8	1150,1	1148,8	1157,4	1128,9	1164,1	1030,2	853,4	772,0	786,4	777,8	673,1	689,8
1-year T-Bill in billion cedis	415,1	419,5	437,1	452,9	451,9	442,0	444,3	413,4	368,2	315,7	290,3	272,0	248,0
Interest rates													
91-day T-Bill	18,7	16,6	17,8	18,3	18,0	16,9	16,9	16,9	17,0	17,0	17,1	17,1	17,08
182-day T- Bill	20,3	18,5	19,0	19,1	18,8	17,6	17,8	17,8	17,8	17,8	17,8	17,9	17,85
1-year T-Bill	20,5	19,0	19,6	20,0	19,0	17,9	17,8	17,8	17,8	18,9	17,9	17,8	17,85