

Kwame Nkrumah University of Science and Technology, Kumasi

Institute of Distance Learning

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**COMPARATIVE ANALYSIS OF THE PERFORMANCE OF
EQUITIES (STOCK) AND TREASURY BILLS IN GHANA**

BY

Brilliant Divine Doko

(PG 3058009)

JUNE, 2011

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**A Thesis Submitted to the Institute of Distance Learning, Kwame
Nkrumah University of Science and Technology, in partial
fulfilment of the requirement for the award of
COMMONWEALTH EXECUTIVE MASTERS
IN BUSINESS ADMINISTRATION (CEMBA).**

JUNE, 2011

DECLARATION

I, Brilliant Divine Doko, hereby declare that this research work towards Commonwealth Executive Master of Business Administration (CEMBA) is personally undertaken by me under the supervision of Mr. Ernest-Bruce Twum. Any part of this work that other people's views and ideas have been utilized, I have duly acknowledged.

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DEDICATION

This study is dedicated to my wife Mrs. Rita Abrokwah Doko who is also my prayer partner. Her spiritual, moral, physical and financial support enabled me to complete this program. Also, to my three daughters, Pearl, Abigail and Benedicta who sacrificed a lot of their lovely moments usually spent with Dad to allow me to study.

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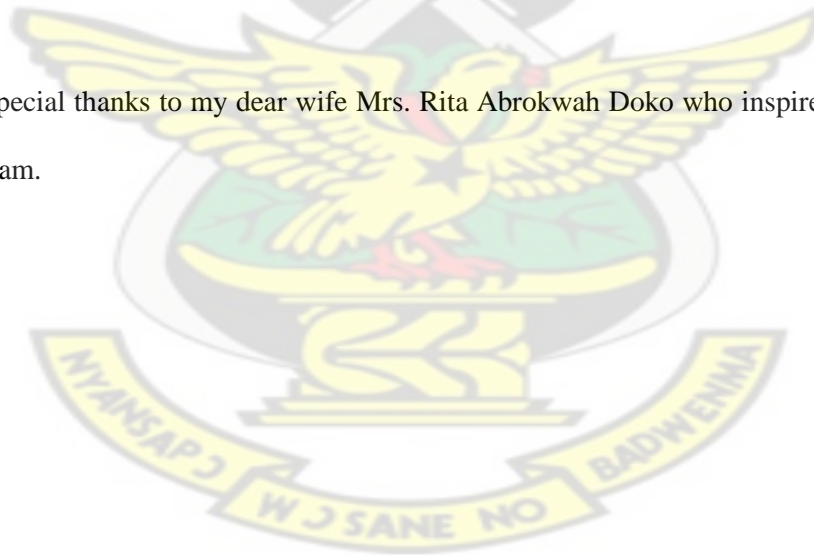


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ABSTRACT

One very important function of financial markets is helping to channel funds from surplus units to deficit units at appropriate prices. Despite the existence of an organized stock exchange in Ghana, many Ghanaians are so much impressed with the observable high interest rate in treasury bills that many believe treasury bills offer high returns than other securities. The study compared risk and returns characteristics of stock exchange traded shares and treasury bills in Ghana to find out which of the two instruments gives better rewards to investors. We made use of annualized returns of these instruments and applied statistical measures of average annual returns, standard deviations and co-efficient of variations for the analysis. Comparing investor A (GSE All-Share Investment) and investor B (Treasury Bills Investment) as sample study for the period of 1991 to 2005, it was revealed that GSE All-Shares Index has higher risk and higher return. This result confirms the general expectation of the relationship between rate of returns and the risk associated with investment – the higher the risk, the higher the return. The Study further revealed that the market performance of both treasury bills and GSE All-Share Index outperformed the rate at which prices were rising (average inflation rate) for the period 1991 – 2005. Additionally investors have been adequately rewarded for bearing risk as stock exchange traded shares for the period under study returned a positive average annual risk (market risk) premium of 11.81% over treasury bills.

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CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF STUDY

Investment landscape in Ghana has been changing rapidly. Individuals, groups and corporate bodies with surplus funds are more willing in recent times to make available these funds to deficit units at appropriate prices. Long before the establishment of Ghana Stock Exchange (GSE), securities were being traded in Ghana. Treasury Bills and Bank of Ghana Bills were being issued by the Bank of Ghana. Additionally, shares or equity securities were being traded over the counter by National Trust Holding Company (NTHC). Treasury Bills are issued to finance the government deficits and Bank of Ghana sells Bank of Ghana Bills to mop up excess liquidity and buys Bank of Ghana Bills to inject liquidity in the system.

Equity securities offers an opportunity to both public and private limited liability companies to mobilize funds from the general public as a start up capital or capital for expansionary work. Individuals, groups or corporate bodies that buy shares have become part owners or shareholders in these limited liability companies.

The budget deficits of the country continue year by year, therefore, the government has to finance these deficits by borrowing from the general public in the form of Treasury Bills. These government borrowings offer attractive interest rates for these Treasury Bills. Treasury Bills have so gained a high appeal among the population as securities with high returns and virtually no default risk. The establishment of Ghana Stock Exchange (GSE) in 1990 represented a significant change in securities markets in Ghana. There are currently 35 listed companies trading on GSE. With a proper

functioning stock exchange in place listed limited liability companies in the country have the chance to raise capital by trading shares with the support of GSE. Shares on the GSE are traded regularly enabling listed equities to provide more liquidity than unlisted equities, since it is more difficult to dispose of unlisted shares than shares of listed companies.

Liquidity is being able to liquidate or convert the partner's ownership to its fair value in money without undue effort or delay. Liquidity is the ease at which an asset can be sold and converted into cash. Owners of shares are usually free to sell their shares to anyone else without need for approval from the company itself. This ability to liquidate shares is a major advantage to the owners. Limited Liability Company is a business entity in which the ownership is divided into units known as shares. A Limited Liability Company is a legal entity which is separate from its owners (shareholders). In Ghana a limited liability company is organized under the companies' code of 1963 (Act 179).

Securities are instruments which are evidence that the holder has an investment in a company. The owner of a security can know his rights through the laws concerning companies and securities, as well as through information, which the company is required to provide to the investor. All limited liability companies issue shares. Shares are also known as equities. Each share or equity represents a portion of ownership. If a company has issued 10 shares, each share will indicate 1/10 ownership. A holder of 5 shares would own 50% of the company.

A purchaser of shares gets for his investment the following share holders' rights

(1) Sharing in the profits of the company, including dividends if declared by the directors

(2) Voting to elect the Directors, who will appoint and oversee the managers of the business

(3) Attendance at an Annual General Meeting of shareholders where directors and management provide information about the business

(4) Receipts of regular financial reports of the business

(5) Ability to sell shares to anyone else without prior permission of the company. Ownership of shares is evidenced by a share certificate issued by the company.

One of the major issuers of securities is the government. The government of Ghana needs to borrow to finance its operations when its expenses are higher than its revenues (i.e. budget deficit). The instruments that are currently being issued by the Government of Ghana are: 91-day treasury bills; 182-day treasury bills; 1 year note, 2 year fixed rate bond; 3 year fixed rate bond; 2 year floating rate bond (interest rate spreads over 91-day treasury bill); 3 year floating rate bond (interest rate spreads over 182-day treasury bill); and 3 year Government of Ghana Index-Linked Bond, an instrument whose interest is linked with the rate of inflation.

1.1 STATEMENT OF PROBLEM

In spite of the existence of an organized stock exchange in place in Ghana, it appears more and more Ghanaians are so impressed with the observable high rate of returns on treasury bills that many believe that treasury bills offer the opportunity to earn higher rewards (returns) than can be earned on other securities. Should a young investor

in Ghana be obsessed with the seemingly attractive interest rate on T- Bills and therefore not willing to take risk, which might earn him a higher return in the long run? According to finance theory "Those who bear systematic risk expect to be rewarded in the long run". It is therefore logical that the expected returns on equity investment which is riskier should attract more returns than the returns on treasury bills which has virtually no default risk unless the state is destroyed. The purpose of the study, therefore, is to investigate whether the attractive high interest rates on treasury bills offer investors the opportunity to earn greater yields than can be earned on stock exchange traded shares in the long run.

1.2 OBJECTIVES OF STUDY

In general, this study aims at comparing and analyzing the annual returns on treasury bills and equity securities for a period. Specifically, the study objectives are as follows;

- (1) To calculate the average annual returns on investments in treasury bills and shares within a period of fifteen years, i.e. 1991-2005
- (2) To determine whether investors are given premiums for taking risk.
- (3) To find out whether investors are adequately compensated in real terms, that is after considering inflation.

1.3 SIGNIFICANCE OF STUDY

The outcome of this research work is purposed to inform securities analysts, researchers, students and other academics about the investment qualities of listed stocks and treasury bills. The study also aims at informing prospective and existing stockholders as to whether or not to invest in equities as long term investment. In addition, the study seeks to emphasize the importance of more companies to list on the Ghana Stock Exchange (GSE) to gain easier access to long term capital and to enhance the status of companies in the Ghanaian community. Finally, the outcome of the study will help investors to make informed decisions and will be better guided in their choice of investment between treasury bills and stocks.

1.4 METHODOLOGY

This research work relied on information from documentary source or secondary data. Historical data on annual returns were collected and processed to determine the average annual returns of the listed stocks and treasury bills in Ghana for a period. Data collected covered the period 1991-2005 and the following were calculated and compared:

- (1) The average annual return on investment in treasury bills within fifteen years (1991-2005)

(2) The average annual return on investment in equities of listed stock within fifteen years (1991-2005)

(3) The average inflationary rates vis a vis the average annual rate of returns on treasury bills and listed stocks within the period (1991-2005)

Data for the study would be mostly obtained from the Ghana Stock Exchange, the Bank of Ghana and Statistical Service of Ghana. Statistical tools such as Arithmetic Mean, Standard Deviation and Co-efficient of Variation would be used to analyze the data gathered.

1.5 HYPOTHESIS OF THE STUDY

Two hypotheses have been generated for the study;

(1) H_0 = investments in equities have higher returns in the long run than investments in treasury bills

H_1 = investments in equities do not have higher returns in the long run than investments in treasury bills

(2) H_0 = average annual returns on both treasury bills and listed equities are normally over and above the average rate of inflation

H_1 = average annual returns on both treasury bills and listed equities are not over and over the average rate of inflation

1.6 THE SCOPE OF THE STUDY

This research work looks at returns relationships between treasury bills and listed equities in Ghana over the period 1991 – 2005. These two investment instruments have been chosen for study because of their growing popularity among the investing public. The choice of period has been influenced largely by availability of data.

1.7 THE ORGANIZATION OF THE STUDY

The study is divided into five chapters. Chapter one consists of introduction, the identification of the problem, the objective of the study, the significance of the study, methodology, the scope of the study and the organization of the study. Chapter two gives detailed look at the theoretical frame-work on the topic of study. Researcher attempts to revisit existing works which have been done on the topic. Chapter three focuses on the methodology. It emphasizes on the method of data collection and analyses. Chapter four analyses the findings, graphs and tables used are also shown. Finally, chapter five looks at the summary, recommendations and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter presents the theoretical frame-work on the topic of study. Researcher attempts to revisit existing works which have been done on the topic.

2.1 THEORETICAL FRAMEWORK

There are theories from which this research is based. These are economic and finance theories.

2.1.1 ECONOMIC THEORY

Many economists hold the view that imposition of interest rates, high reserve requirements and others restraints, constitute financial repression which impedes financial development and reduces economic development. They reason that this financial repression results in low savings, credit rationing and low quality investments. However, when financial markets are liberalized, investors are rewarded for bearing risks. Investors stand the chance to earn positive risk premiums. This induces them to make investments with potential gains to the whole economy. Another issue that bothers investors is inflation. Inflation is the state of rising prices.

In general, investors do not like rising prices because that introduces uncertainty into their lives and makes it difficult to plan for the future. Therefore, investors focus on the returns they will receive over and above the rate of inflation. This is called the REAL

RETURN. The return that investors receive prior to considering the rate of inflation is called NOMINAL RETURN. Economic theory holds that the REAL RETURN is approximately given as the Nominal Return minus the rate of inflation.

2.1.2 FINANCE THEORY

With most investments, individuals or businesses spend money today with the expectation of earning even more money in the future. The financial performance of an investment is expressed by the rate of return of that investment. Finance theory has it that the rate of return an investor earns is dependent on the level of risk involved in that investment. Risk is defined by Webster's as a hazard; a peril; exposure to loss or injury. Thus, risk refers to the chance that some unfavorable event will occur. Investment in stocks (shares) is taking high risk. This is because it is possible that the price of the stocks will drop to such an extent that you may lose all your monies invested. Again the return from stocks cannot be estimated precisely.

On the other hand, investment in treasury bills is risk free. The rate of return on treasury bills can be estimated quite precisely. That is, you are sure of exactly how much you will earn upon the maturity of the investment. Investments in stocks are relatively riskier because there is a significant danger of earning much less than the expected return. Theory thus has it that no investment should be undertaken unless the expected return is high enough to compensate the investor for the perceived risk of investment. The higher

the probability of default (not earning your expected return) the riskier the investment and the higher the risk, the higher the required rate of return

2.2 INVESTMENT THEORIES

There have been several investment theories which have evolved over time. One of the early proponents of investment theories, Clark (1917) stressed the accelerator theory. This accelerator theory emphasized that investment responds to changing demand conditions. The idea is that if demand increases, there will be an excess demand for goods. In the light of this condition, companies are faced with two choices; whether to meet the demand by raising supply or to raise prices in the hope of choking off the excess demand. Taking decisions to raise supply by companies (firms) will necessitate an increase in output capacity by investing in plant and equipment.

Accelerator theory thus emphasizes a strong relationship between aggregate demands and investment. This accelerator theory in its rigid form assumes that investment responds immediately and entirely with changing demand conditions. Koyck (1954) and Chenery (1952) developed the flexible accelerator theory as an alternative to the rigid accelerator model. According to this flexible acceleration model, the rate of investment by firms (companies) was determined by the size of the gap between existing capital stock and the desired stock needed to raise output to desired level required to meet a demand shock. This theory hypothesizes that the larger the gap between the existing capital stock and the desired capital stock, the greater a company (a firms) rate of investment. Directly opposite to the view held by the rigid accelerator theory that

investment responds immediately to changing demand conditions, the flexible accelerator theory states that companies (firms) plan to close a fraction of the gap between the desired capital stock and the actual capital stock at a time. This is done to avoid a dilemma that firms are likely to face in the event of a negative demand shock. Therefore, in the flexible accelerator model of Chinery and Koyock, desired capital is said to be proportional to output, as in the rigid accelerator of Clark. Desired capital is said to depend on such factors as capacity utilization, internal funds and the cost of external finance and other variables in other alternative models of investment behaviour.

Another alternative to Clark's accelerator model is the profit theory proposed by Timbergen (1938) and subsequently developed by Klein (1950). This theory states that investment depends on the level of profits. Timbergen, offered two accelerative rationalizations of this theory. He argued that realized profits measure expected profits and investment was governed by profit expectations. His second argument is that, the rate of investment was constrained by the supply of internal funds. Jorgensen (1971) noted that in stronger versions of the theory, the financial constraints operated at all times (the cost) of funds schedule becomes highly inelastic where internal funds are exhausted. In weaker versions however financial constraints operated at low rates of capacity utilization, while extreme pressure on capacity resulted in the use of outside sources of finance.

Meyer and Kuh (1957), Dunsenbury (1958), Kuh (1963), Meyer and Glanber (1964), Meyer and Strong (1990) formulated the liquidity theory. This theory states that,

investment depends primarily on cash flows/internal finance; the sum of retained earnings and depreciation. In other words investment may be constrained by the supply of internal funds as in the profits theory. In addition, according to liquidity theory, past levels of profits could be an adequate proxy for future levels and hence might be relevant for capital expenditures decisions.

Recent studies relate investment to financial development in general, emphasizing the services provided before financial intermediaries to investors. According to this study, financial markets role is critical in allocating investment capital to high return activities Greenwood and Smith (1957). Additionally, financial intermediation contributes to alleviate information problems, reducing liquidity risks and monitoring costs and channelling funds to some borrowers who otherwise could not have access to non-intermediated funds (Gertler, 1998; Levine, 1997). The low private investment ratio in developing countries may be as a result of low financial intermediation characterized by limited range of financial instruments, lack of long term lending, inefficient lending practices (e.g. politically motivated lending), direct credit control and crowding out of private investment by public borrowing for consumption purposes.

Old investment theories assume investment decisions are made with certainty (Keynes 1936), Duessenberry (1958), Knox (1952), Timbergen (1938), Hall and Jorgensen (1971), however, recent investment models have put emphasis on uncertainty as a critical factor in private investment decisions. According to Pindyck (1991) previous investment theory ignore two important characteristics of investment expenditures. In the first place, most investment expenditures are irreversible, which means they are sunk cost

and cannot be recovered. Secondly investment s can be delayed creating the options of waiting for new information about prices, costs and other market conditions. Pindyck argues that the net present value rule that is invest when the value of a unit of capital is at least as large as its cost must be modified when there is an irreversible investment because when an investment is made the firm cannot disinvest should market conditions change adversely .

This lost option value according to him is an opportunity cost that must be included as part of the cost. Accordingly “the value of the unit must exceed the purchase and installation cost, by an amount equal to the value keeping the investment option active”. Pindyck, 1991:112), He argues further that the opportunity cost of investing can be large and highly sensitive to uncertainty over the future value of the project, so that changing economic conditions which affect the perceived riskiness of future cash flows could have a large impact on investment spending, larger than say a change in interest rates. Rodrick (1991) introduces policy uncertainty as a determinant of a private investment. He argues that when a policy reform is introduced, it is very unlikely that the private sector will see it as one hundred percent sustainable either because of expectations that the political economic configuration that supported the earlier policies may resurface or because of fear that unexpected consequences may lead to a reversal.

As a result investors who ought to respond to the signals generated by the reform behave, rationally by withholding investment until much of the uncertainty regarding the eventual success of the reform is eliminated. Empirical studies of Barro (1991),

Aizenman and Marion (1993), Barney and Ramey (1995), Alesina and Perotti (1995) and Serven (1996) have shown that low-income countries have greater policy uncertainty than high-income countries and that policy uncertainty is an important factor for the lower long-run investment and output in these countries. Recent theoretical and empirical works have also demonstrated a clear negative link between macro-economic and political uncertainty and levels of private investment across countries. For example, Serven and Solimano (1993) reported a negative impact of inflation and real exchange rate volatility on private investment in a sample of developing countries.

Aizenman and Marrion (1995) found a negative correlation between indicators of macro-economic volatility (terms of trade, inflation, real exchange rate) and private investment. Green and Villamiera (1991) found that higher inflation rate had negative effect on private investment of 23 developing countries in their pooled time series cross-sectional study. Another strand of literature has examined the effects of political uncertainty of investment. These studies have focused on the role of government instability, rapid government turnover, unstable incentive frameworks, social unrest and fundamental uncertainties about property rights for example, Baron found that measures of government instability (the number of revolutions) and political violence (the number of assassinations) are significantly related to cross country differences in investment. In the light of the above theories, it is clear that private investment decisions may be subject to multiplicity of influences and evidences, different behaviour under different circumstances and time period.

2.3 INVESTMENT RETURNS AND RISK

Investment involves a commitment of current resources in anticipation of deriving greater resources (reward or return) in the future. This anticipated return may take the form of profit, dividend, interest, rent or capital appreciation (i.e. if the asset's price rises). Every investment entails some degree of risk, according to Francis (1991), it requires a present sacrifice for a future uncertain benefit. Every investor has his or her own attitude about risk and how much he or she can tolerate, according to Cheney and Moses (1999). They pointed out that since investment alternatives have different types of risks associated with them, the investor must determine which combination of alternatives matches his/her particular risk tolerance. They also pointed out that intelligent investing involves combining investment alternatives in a portfolio that offers a fair return for the risk one is willing to assume.

Mao (1976) identified four major sources of investment risks; business risk, financial risk, interest rate risk and purchasing power risk. Business risk is any development that exerts an adverse effect on the operation income of the firm, e.g. changing consumer taste, increased foreign competition, shortage of raw materials, etc. financial risk is the uncertainty as the future returns to a firm's owners resulting from the use of debt or preferred stock. The use of debt and preferred stock results in the introduction of fixed charges – interest expense and preferred dividends, into the cost structure of the firm. The presence of these fixed costs tends to destabilize the after tax net profit. Purchasing power risk (inflation rate risks) is the possibility that the general level of commodity prices may rise causing a decline in the purchasing power of the investors'.

assets. Interest rate risk is the possibility that the general level of interest rates may rise. When interest rates rise, the investing public's required rate of return rises with it causing share and bond prices to fall. Other sources of investment risks include management risk, default risk, liquidity risk and bull-bear market risk and exchange rate risk.

Jorgensen (1963, 1966, 1967, and 1971) and associates formulated the neoclassical approach, based in part on the Modigliani-Miller (1958) theorems in finance. This model implies that investment decisions depend mainly upon the cost of capital (which in turn depends on the price of capital goods, the rate of interest, the rate of depreciation, tax structure etc). The neoclassical view assures that as long as firms have profitable investments with returns above the cost of capital, they would obtain sufficient funds to undertake them. Consequently, internal and external finance are viewed as substitutes; firms could use external finance to smooth investment when internal finance fluctuates. In a broader sense the neoclassical view also implies a complete separation of real and financial decisions faced by the firm. The departure of the Jorgensen approach was also in providing a structural formulation of the investment decision, based on profit maximizing behaviour by firms.

Bischoff (1971) proposed what has become known in the literature as the modified neoclassical model, as an extension to the standard Jorgensen neoclassical model. He argued that it is often easier to modify factor proportions and thus capital-output ratio ex ante; ex post, the substitution between factors is zero. According to him, investment may be more responsive to changes in output compared to changes. "Neoliberal" approach emphasized the importance of financial deepening and high

interest rates in stimulating growth. The proponents of this approach are Mckinnon (1973) and Shaw (1973). They argued that developing countries suffer from financial repression (which is generally equated with controls on interests rates in a downward direction) and that if these countries were liberated from repressive conditions, this would induce savings, investment and growth. In the neoliberal view, investment is positively related to real rate of interest, in contrast with the neoclassical theory.

The reason for this is that a rise in interest rates increases the volume of financial savings through financial intermediaries and thereby raises investible funds, a phenomenon that Mckinnon (1973) calls the “conduit effect”. So, while it may be true that the demand for investment declines with the rise in the real rate of interest, realized investment actually increases because of the greater availability of funds. This conclusion however, applies only when the capital market is in disequilibrium with the demand for funds exceeding supply.

2.4 FINANCIAL MARKETS

Financial markets perform the essential economic function of channelling funds from those who have saved surplus funds, because they spend less than their income, to those who have a shortage of funds, because they wish to spend more than their income, usually on productive investment opportunities. Financial markets are usually segmented into the money market and the capital market. Broadly speaking, the money market is

defined as that segment of the financial market where short-term finances are made available, through the issuance and trading of short-term securities. Securities available in the money market are short-term debt securities, with maturities of up to one year.

The capital market, on the other hand, is the market for the issuance and trading of medium- to- long-term securities. It is also that segment of the financial market where medium to long-term capital is raised. Securities available in this market include bonds, shares, and other instruments with medium-to-long-term maturities.

2.5 CAPITAL MARKET INSTRUMENTS

Securities available in this market include bonds, share and other instruments with medium-to long-term maturities. While share may only be issued by companies, bonds may be issued by any entity with authority to borrow such as Government, corporate entities, Government Agencies, Municipal or Local Government Authorities, and educational institutions, among others. Example of Government of Ghana bonds include the 5-year Ghana Stock Exchange Commemorative Stock, which matured in 1995, and 3-year Government of Ghana Index-Linked Bond (GCILBS).

Shares represent a contribution to the capital of a company, or part ownership of a business. The two main types of share are Preference Share, and Ordinary Shares. Preference shares entitle holders to a fixed amount of dividend, which is payable prior to payment of dividends to holders of other classes of shares. Dividends not paid in any year may be carried over to subsequent years and paid before holder of other classes of shares

paid in those years, depending on whether they are expressed to be cumulative or non-cumulative.

Ordinary shares (also called common or equity shares) attract no fixed dividend payments, and are paid dividends when declared, only after payments to preference shareholders. Dividends not paid in any year lapse and are not cumulative. Ordinary shareholders receive a distribution of any residual assets of the company in a winding up, before such distributions to holders of preference shares. In view of the greater risk they bear, ordinary shareholders have unlimited voting rights (Ghana Stock Exchange Securities Course level 201 Manual)

2.6 MONEY MARKET INSTRUMENT

Money market instruments are generally short-term, highly liquid, relatively low risk debt instruments sold by the government, financial institutions and companies to investors with temporary excess funds to invest (Bodie Kane and Marcus op cit). Money market instruments currently available on the Ghanaian market include short and medium term government debt instruments (Treasury Bills and Notes), high-class commercial paper, call money, certificate of deposits (CDs), negotiable certificate of deposits (NCDs) and repurchase agreements (Repos). Treasury bills and notes are issued on behalf of the government for sale to investors as a means of financing government temporary cash short falls by the Bank of Ghana (central Bank).

The Central Bank sometimes, in addition to, Government of Ghana securities, issues securities (bills and bonds) to investors on its own account, for monetary purposes, i.e. to help mop excess liquidity. The government securities available to investors include 91-day, 182-day bills and 1-year notes. As the name suggests, the maturities profile of these \Government of Ghana Securities ranges between 3months and 1-year. On the average, a minimum amount of GHC 10.00 is needed to invest in a Government of Ghana bill through the Primary Dealers (PDs). Upon maturity of the bill the investor receives his money plus the determined interest rate given at the time of investment.

The interest on the Treasury bill can be collected upfront on the day the bill is purchased. The interest given to the investor upfront is referred to as the discount value. This is always slightly lower than the interest value received at the end of the maturity of the bill. Investors who cannot hold any Government security purchased until maturity can rediscount it over the counter in the money market. Treasury bills are risk free, easily convertible to cash and involve no transaction cost. [Ghana Stock Exchange, Securities Course, 201 Manual].

2.7 EQUITIES (COMMON STOCK)

According to Bodie Kane and Marcus op. cit, common stocks (shares) represent ownership interest in companies. Common-stock-holders are part owners of a company. They therefore share in the company's successes and problems if the company prospers;

the investor receives high rates of return and can become wealthy. The investor can also lose money if the firm or company does not do well or go bankrupt. Shares of private limited liability companies are not offered to the general public. In fact, by law, memberships of private limited liability companies are not to exceed 50 people. These private limited liability companies trade their shares over the counter, i.e. not in the secondary market of the Ghana Stock Exchange. However, there are public limited liability companies whose ownership ranges from seven (7) people to infinity.

These companies have their shares listed on the Ghana Stock Exchange which serves as a secondary market for investors to easily enter or exist by buying or selling shares of listed companies. Benefits from shares listed on the Ghana Stock Exchange come primarily in two forms. First, dividend income may be earned, if the issuing company distributes profit to shareholders. Secondly, the investors can make capital gains from future sale of shares owned. These two benefits are however not guaranteed if the firm does not do well. Other benefits that may accrue to investors in shares are;

- (1) The right to vote at shareholders meetings
- (2) A right's issue which is a new issue of shares for cash existing shareholders in proportion to their holdings usually at a preferential price
- (3) Bonus shares, which are additional shares distributed freely to existing shareholders [Ghana Stock Exchange, Course 101]

Shares of thirty five companies were listed and traded on the Ghana Stock Exchange at the end of 2010.

2.7.1. COMMON STOCK AND DIVIDEND

A share of common stock is quite literally a share in the business, a partial claim to ownership of the firm. Owning a share of common stock provides a number of rights and privileges. These include sharing in the income of the firm, exercising a voice in the management of the firm, and holding a claim on the assets of the firm.

2.7.1.1 DIVIDENDS

Stockholders share directly in the income of the firm in the form of cash dividends. The firm is not obligated to pay dividends, which will be paid only if declared by the board of directors. As a result, the size and timing of the dividends is uncertain. Although higher earnings are desired, the dividend policy of the firm—which is the long-run or average fraction of earnings that will be paid as dividends—is sometimes argued to be irrelevant. One argument is that in a perfect economic environment, dividends would be considered as a "residual." This is because the stockholders may share indirectly in the income of the firm through capital gains—an increase in the stock price. In this view, management must choose between paying dividends now, and investing in projects that will increase stock price. Dividends would be paid only if the firm had no better use for the funds.

Dividends are declared for stockholders at a particular date, called the date of record. Since stock transactions ordinarily take several business days for completion, the stock goes "ex-dividend" before the date of record, unless special arrangement is made for immediate delivery. Since the dividend removes funds from the firm, it can be

expected that per share price will decrease by the amount of the dividend on the ex-dividend date. There are, however, some arguments in favour of stock dividends. One of these is the argument that investors will avoid stocks of unusually high price, possibly due to required size of investment and round lot (100 shares) trading. Decreasing price through stock dividends attracts more investors and results in wider ownership.

2.7.2 PREFERRED STOCK AND DIVIDENDS

Preferred stock is sometimes called a hybrid, since it has some of the properties of equity and some of the properties of debt. Like debt, the cash flows to be received are specified in advance. Unlike debt, these specified flows are in the form of promises rather than of legal obligations. It is not unusual for firms to have several issues of preferred stock outstanding, with differing characteristics. Other differences arise in the areas of control and claims on assets.

2.7.2.1 DIVIDENDS

Because the specified payments on preferred stock are not obligations, they are referred to as dividends. Preferred dividends are not tax-deductible expenses for the firm, and consequently the cost to the firm of raising capital from this source is higher than for debt. The firm is unlikely to skip, or fail to declare the dividend, however, for several reasons. One of the reasons is the dividends are typically (but not always) cumulative. Any skipped dividend remains due and payable by the firm, although no interest is due. One source of the preferred designation is that all preferred dividends in arrears must be paid before any dividend can be paid to common stockholders (although bond payments

have priority over all dividends). Failure to declare preferred dividends may also trigger restrictive conditions of the issue. A very important consideration is that, just as for common dividends, preferred dividends are a signal to stockholders, both actual and potential. A skipped preferred dividend would indicate that common dividends will also be skipped, and would be a very negative signal that the firm was encountering problems. This would also close off access to the capital markets, and lenders would be wary.

2.8 PERFORMANCE OF STOCKS IN OTHER COUNTRIES

As a class, common stock has provided the highest rate of return to investors. A study by R. G. Ibbotson & Associates found that, over the period 1926-96, large company common stock provided an arithmetic average annual return of 12.7 percent. This compares with an average annual return of 6 percent for long-term corporate bonds, and 3.8 percent for U.S. Treasury bills (T-bills). Annual inflation over the period averaged 3.2 percent. Common stock also provided the highest risk, with returns having a standard deviation of 20.3 percent, as compared to 8.7 percent for long-term corporate bonds and 3.3 percent for T-bills. Although the data point out the desirability of common stock investment, these long-run averages must be interpreted carefully. Hidden within these averages were some extended loss periods, and some short periods of sharp losses. Also, the returns reflect the effects of diversification. The historical returns of individual stocks or small portfolios could have quite different average returns, and would almost certainly exhibit greater risk. Finally, the disclaimer so frequently found in investment advertisements that future performance may differ from past performance is applicable.

While the above observations give a general idea of the comparative returns to stocks overall, stocks are diverse in nature and can be classified many ways for investment purposes. One such classification has been the discussion of small cap stocks. These are stocks of smaller firms. Ibbotson & Associates found that, over the 1926-96 periods, small cap stocks had an average annual return of 17.7 percent, but with a standard deviation of 34.1 percent. It must be noted that the sample used was the stocks in the lowest quintile of the New York Stock Exchange, when ranked on capitalization (shares outstanding times' price per share). While small by comparison to the other quintiles, these firms are still sizable. Findings such as these have led to an investment strategy of purchasing such stocks to earn the historical higher return. Indicative of the problems of long-run averages, many such investors have been disappointed.

Stocks are also classified according to the level of risk. Thus risky stocks are sometimes referred to as aggressive or speculative. If risk is measured by the beta (systematic or non-diversifiable risk) then the term applies to a stock with a beta greater than one. These stocks are quite sensitive to the economic cycle, and are also called cyclical. Contrasted are the blue chip stocks, high-quality stocks of major firms that have long and stable records of earnings and dividends. Stocks with low risk, or a beta of less than one, are referred to as defensive. One form of investment strategy, called timing, is to switch among cyclical and defensive stocks according to expected evolution of the economic cycle. This strategy is sometimes refined to movement among various types of stock or sectors of the economy. Another stock category is income stocks, stocks that have a long and stable record of comparatively high dividends.

Common stock has been suggested as a hedge against inflation. This suggestion arises from two lines of thought. The first is that stocks ultimately are claims to real assets and productivity, and the prices of such claims should rise with inflation. As pointed out by Gitman and Joehnk(1993), however, in real terms the Dow Jones Industrial Average (DJIA) fell almost without interruption from 1965 to 1982. The second line of thought is that the total returns to common stock are high enough to overcome inflation (the DJIA measures only the capital gains or price change component of returns). While this is apparently true over longer periods, as shown in the Ibbotson & Associates study, it has not held true over shorter periods.

Preferred stock is generally not considered a desirable investment for individuals. While as noted the junior position of preferred stockholders as compared to bonds indicates that the required rate of return on preferred will be above that of bonds, observation indicates that the yield on bonds has generally been above that of preferred of similar quality. The reason for this is a provision of the tax codes that 70 percent of the preferred dividends received by a corporation are tax exempt. This provision is intended to avoid double taxation. Because of the tax exemption, the effective after-tax yield on preferred is higher for corporations, and buying of preferred by corporations' drives the yields down. The resulting realized return for individuals, who cannot take advantage of this tax treatment, would generally be below acceptable levels.

2.9 PERFORMANCE OF STOCKS AND TREASURY BILLS IN GHANA

Aboagye (2003) in studying the performance of stocks in Ghana, using an investment of a same amount in treasury bills and shares over a period of 1991 and 2001, found out that investors in stock exchange traded shares earned on average 54% per annum, whereas treasury bill investors Earned 36.3%. Thus stock exchange traded shares returned a positive risk premium of about 18 percentage point on average per annum. Risk is therefore rewarded. Aboagye 2003 further pointed out that investors in treasury bills as well as investors in shares and US\$ all realised average annual returns that exceeded the average rate at which prices were increasing.

Going hand-in-hand with the issue of interest rate, A. Q.Q. Aboagye noticed with concern the establishment of an organised stock exchange where limited liability companies now have a chance to raise capital. But so impressed are Ghanaians with the observable high rate of returns on treasury bills that many believe treasury bills offer the chance to earn higher returns than can be earned on other financial securities.

2.10 INFLATION

According to AQQ Aboagye, one issue that bothers investors is inflation. Inflation is the state of rising prices. In general, investors do not like rising prices, because that introduces uncertainty into their lives and makes it difficult to plan for the future. Thus, investors focus on the return that they will receive over and above the rate of inflation. They call this the real return. The return that investors receive prior to

considering the rate of inflation is called the nominal return. Economics theory holds that the real return is approximately given as the nominal return minus the rate of inflation.

2.11 THE STOCK EXCHANGE

The Ghana Stock Exchange (GSE), Ghana's only stock exchange, was incorporated in July 1989 as a company limited by guarantee under the Companies Code, 1963 (Act 179). Approval to operate as a stock exchange was obtained under the now repealed Stock Exchange Act 1971 (Act 384). Trading on the GSE commenced in 1990. It currently has 35 listed companies whose shares and bonds are traded on the floor of the exchange. These listed companies commit to disclosure standards and compliance with regulations.

2.11.1 STOCK MARKET INDEXES – GSE ALL-SHARE INDEX

A stock market index is a listing of stocks, and a statistic reflecting the composite value of its components. It is used as a tool to represent the characteristics of its component stocks, all of which bear some commonality such as trading on the same stock market exchange, belonging to the same industry, or having similar market capitalizations. Many indices compiled by news or financial services firms are used to benchmark the performance of portfolios such as mutual funds.

GSE All-Share Index is the only one index that is compiled and published by GSE. GSE-All Share Index is a market capitalization index of all share listed on GSE. All listed companies are included in the index at total market for a period from 12 November

1990 to 30 December 1993 calculated by averaging the market capitalization for all trading sessions during this period. Base index value is 100. To maintain the continuity of the index, the base year total market value is adjusted for all events affecting the capitalization of the companies included in the index that are not caused by price changes. These events include new share issues, new listings, de-listings, and rights issues.

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CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

Chapter three explains the approach adopted to test the hypotheses generated for study in chapter one, and to achieve the objectives of the research. Data collected for the study was both qualitative and quantitative in nature.

3.1 SOURCES OF DATA

This study made use of secondary data only. Secondary data were obtained from journals, magazines, newspapers, textbooks. Specifically, the secondary data consist of research reports, newspapers, Bank of Ghana (BOG) statistical data and publications and articles.

Data have been collected from Bank of Ghana Library, others from the FACTS BOOK issued by the Ghana Stock Exchange as well as Statistical Services of Ghana.

3.2 STUDY POPULATION

The study population was made up of the results of the Ghana Stock Exchange all-share index since the year of establishment in 1990 to 2010, and treasury bills rates as published by the Bank of Ghana for the same period.

3.3 SAMPLE SIZE

It was quite difficult getting information on current performance of shares listed on the Ghana stock exchange. Owing to the constraints of time, and also to follow the practices of research; samples were taken from the populations. The study therefore used documentary data on annual returns of the two investment instruments- T-bills and GSE- All Share Index-and compared these results with the inflation rates for the period 1991 – 2005.

3.4 DATA ANALYSIS

The investment variables used in the comparative study are the 91 – Day Treasury Bill and the Capital Market Instruments, represented by the GSE - All Share Index. The choice of the 91 – Day Treasury Bill was based on its popularity among investors in Ghana. The GSE index is chosen because it tracks performance of the capital market as a whole and is therefore quite representative of the market. We considered two investors, investor A, Mr. Osei-Akoto and investor B, Ms Part-Plange. Investor B started the year 1991 by purchasing one share each of the listed companies on the GSE. By buying a share each of the companies listed on the GSE, the investor had created an investment portfolio.

Investor B started the same year by investing the same amount as investor A in to 91-day treasury bills. After 91 days, investor B reinvested all proceeds from her Treasury bill investment in yet another 91-day Treasury bill investment again. She did this till the

year ended. Her returns were then rolled over. This means that her returns are calculated as the compound return earned for the year. This roll over was done after every 91 days for every year till to the end of 2005.

For investor A, at the end of 2005, his portfolio had a value equivalent to the dividends he received on each company share in addition to the market value of each share in the portfolio. Most often, dividends paid by a company were used to buy more shares of the same company. The gains or return realized for the year is equivalent to the end-of-year value of the portfolio minus the value of the portfolio at the start of the year. The rate of return equaled the gain divided by the value of the portfolio at the start of the year. This process is repeated yearly in computing the annual rates of return on the portfolio of shares.

If within the course of any particular year, any company listed on the GSE issued additional shares to shareholders probably in lieu of cash dividends, stock dividends and /or stock splits, the increased number of shares is used in computing the value of the portfolio thereafter. Some companies also undertook “rights issue”. These were additional shares sold exclusively to existing shareholders in proportion to their share quantity or the number of shares they hold. If a company in investor A’s portfolio sold him a rights of issue, in computing the rate of return, consideration is given to the additional investment that was made by A.

Comparing the annual returns on the treasury bills and equities, the following are calculated for the two instruments;

- The average annual rate of return (nominal and real)
- The standard deviations and
- Co-efficient of variations

The average annual rates of returns are obtained by using the Arithmetic Mean formula and the Geometric Average formula.

Arithmetic Mean (AM) = $\Sigma \text{ARR} / n$, where

ΣARR is the total of annual rates of returns and n is the number of years.

The Geometric Average = $\{(\text{HPR}_1 + 1.0) (\text{HPR}_2 + 1.0) (\text{HPR}_3 + 1.0) \dots \}^{1/n} - 1.0$

Where, HPR_i is a holding period for exactly one year.

The “real” average annual rates of return have been computed using the formula

$$\left\{ \frac{(1 + \text{nominal interest})}{(1 + \text{inflation rate})} \right\} - 1$$

The standard deviations are computed using the formula.

$$\sigma = \frac{\sqrt{\{(R_i - \bar{R})^2\}}}{n}$$

Where: $\frac{\Sigma}{n} (R_i - \bar{R})^2 = \sigma^2$ (variance)

R_i = Annual Rate of Return during period (i)

\bar{R} = the expected value of the holding period yield i.e. the Geometric mean or the Arithmetic mean of the series.

And n = the number of observations

The co-efficient of variation have been calculated by dividing the standard deviation of the returns by the expected rate of the returns i.e. the geometric or arithmetic average of the series.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 INTRODUCTION

This chapter presents an analysis of data collected from the documentary source. It begins with the analysis of data for the 91 day treasury bills.

4.1 THE ANALYSIS OF THE 91- DAY TREASURY BILL

The annualized historical returns obtained by investors in Treasury bill in Ghana for the period 1991 – 2005, in the form of interest are analyzed by comparing them with the average rate of return for the period. The historical annual rates of return are also compared with corresponding annual inflation rate to see how the instrument fared against the inflation. In terms of the riskiness of the instrument during the period, the standard deviation and the co – efficient of variation of the security are also computed for use in the overall analysis.

Table 1: The Nominal Returns on Treasury Bills for the Period 1991 - 2005

Year	Rate of return
1991	18.85
1992	30.1
1993	34.78
1994	29.5
1995	45.1
1996	47.8
1997	1997
1998	28.7
1999	34.19
2000	41.99
2001	28.94
2002	24.61
2003	18.7
2004	17.08
2005	11.53

Source: Bank of Ghana bulletin –various issues

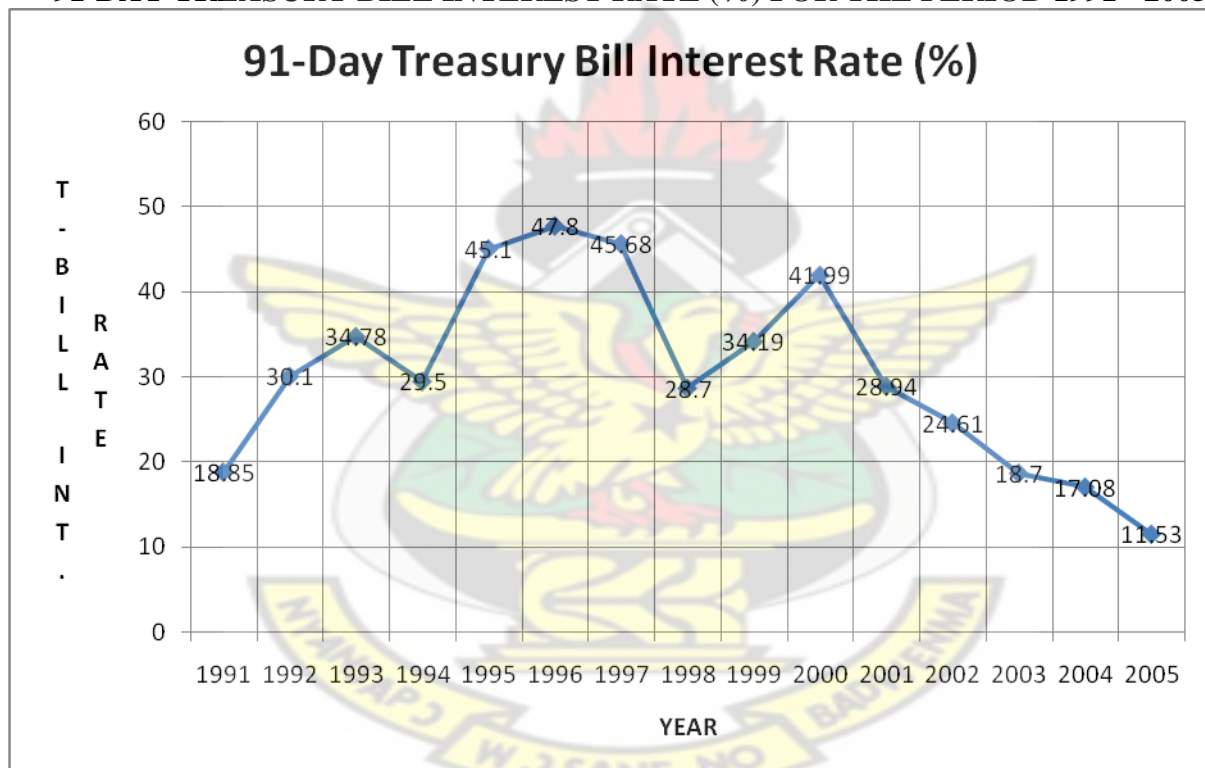
Table 1 shows that the nominal return an investor gets from investing in treasury bills increased from 18.85% in 1991 to as high as 41.99% in 2000. This means that an investor (B) who invested GH¢1,000 in 1991 would have his money increased to the value of GH¢20,676 by the end of 2000 (Ref. Appendix B). That is realizing a monetary return of GH¢19,676 over the 10 years period, based on our assumption that the investor rolls over both principals and interest earned.

The Table further shows that, there has been a persistent drop in the rate of return from the year 2000 to 2005. The rate dropped to as low as 11.53% as at the end of year 2005. The investor (B) would have a monetary value of GH¢51,492 at the end of 2005 (Ref Appendix B). The data further means that on the average the investor in treasury bills obtains a 30.5% rate of return per annum on this risk free investment.

Figure 1 is a line graph depicting treasury bills interest rates for the period 1991-2005.

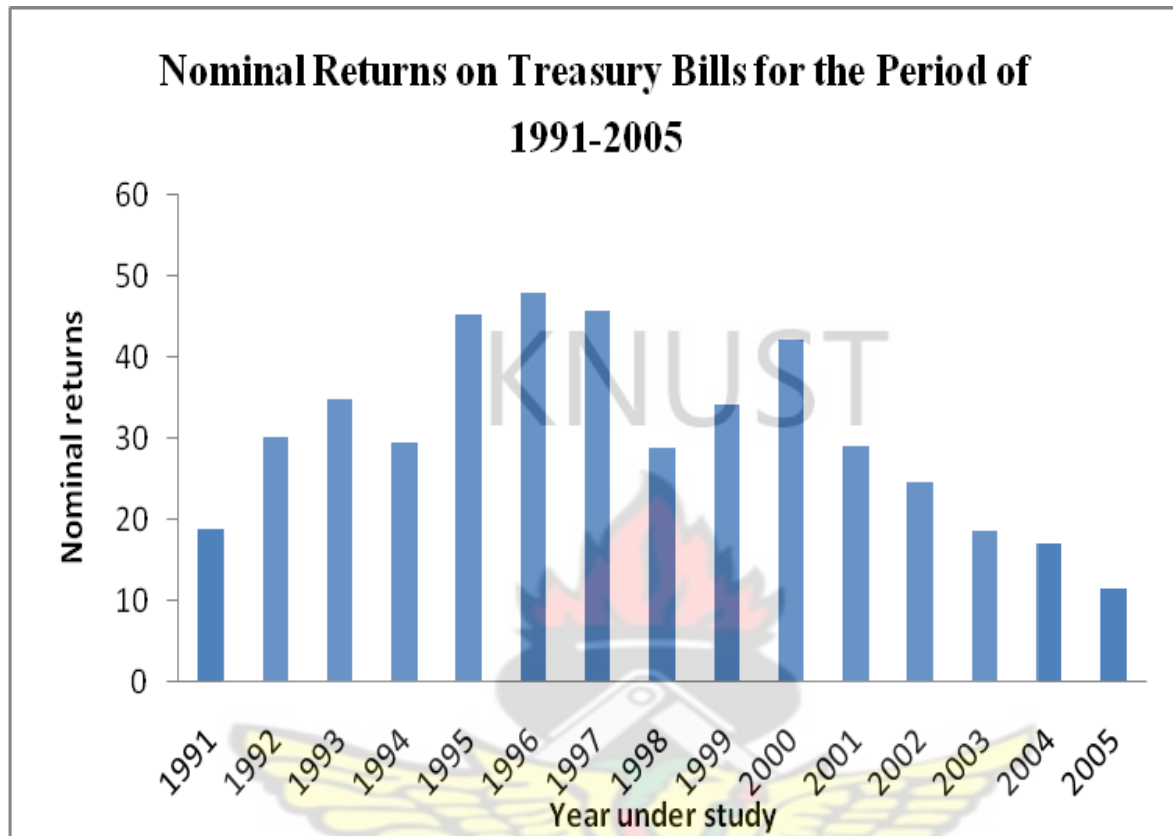
Figure 1

91-DAY TREASURY BILL INTEREST RATE (%) FOR THE PERIOD 1991 - 2005



SOURCE; RESEARCHER'S OWN ELABORATION.

FIGURE 2



Source: researcher's own elaboration

Fig. 2 is a bar graph showing the nominal returns or interest rates on treasury bills for the period 1991 to 2005.

These returns earned have not factored the time value of money. This means that, we need to factor the concept that the GH¢1,000 invested in 1991, is not the same as GH¢1,000 obtained in 2005. This is mainly because of inflation. Thus to be able to obtain the true return the investor earned over the period we need to factor in the respective annual inflation rates. In order

words we need to calculate the real rate of return. The inflation rates for the respective years and calculations of the real rate of return are depicted on Table 2 below.

Table 2 Nominal Interest Rate, Rate of Inflation and Real Rate of Returns of Treasury Bills for the Period 1991 – 2005

Year	91-Day Treasury Bill Interest Rate (%)	Inflation Rate (%)	Real Rate of Returns (%)
1991	18.85	18.0	0.85
1992	30.10	10.02	20.8
1993	34.78	27.7	7.08
1994	29.50	24.9	4.6
1995	45.10	74.4	(29.3)
1996	47.80	46.6	1.2
1997	45.68	27.6	10.08
1998	28.70	19.2	9.5
1999	34.19	12.6	21.59
2000	41.99	40.5	1.49
2001	28.94	21.3	7.64
2002	24.61	15.2	9.41
2003	18.70	23.6	(4.9)
2004	17.08	11.8	5.28
2005	11.53	14.8	(3.27)

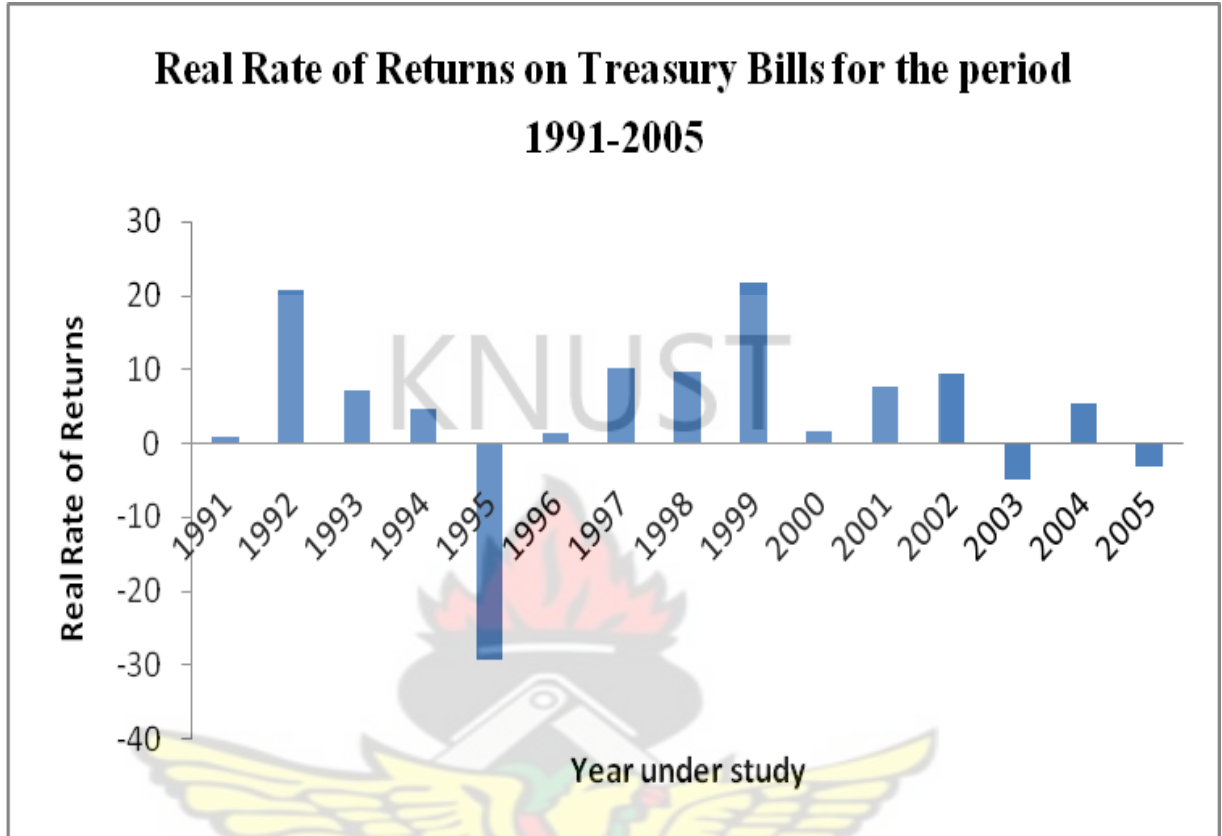
Source: Bank of Ghana and Ghana Statistical Service

From Table 2 above, it will be seen that the real rate of returns were negative in certain years. For examples, it was a negative 29% in 1995 and 5% in 2003. This means that for those years it was not worth investing in treasury bills, as the returns earned from such investments in those years' fell short of increases in general price levels.

The negative returns recorded further means investible funds, committed to treasury bills for those years lost value. For our investor B, given the real rate of return above, it means that the investor's real value of his money at the end of 2000 was GH¢1,452 (Ref. Appendix B). This further means that in real terms the investor had made a monetary return of GH¢452.

The Table also indicates a persistent drop in the real rate of returns from 1999 onwards; with the rate dropping from 22% in 1999 to negative 3% by the end of 2005. This means that the return from T-bills has performed poorly compared to inflation those years. Investor B's real monetary value at the end of 2005 was thus GH¢1,656 (Ref. Appendix B). Indicating a growth of GH¢656 in real money terms from the investment made in 1991. This means an average annual growth of 4.14% over the period. This average real rate of return for the period means that investment in Treasury bill over the period especially when rolled over with interest resulted in a real gain.

Fig 3 shows the real rate of returns of treasury bills for the period 1991-2005.



Source: researchers own elaboration

The real gain over the period seems to be quite low, this confirms the finance theory that 'the lower the risk, the lower the return'. However to further confirm this maxim, we need to ascertain the level of risk associated with treasury bills over the period. To measure the risk therefore, the researcher computes the standard deviation of this investment in Table 3.

Table 3 Standard Deviation of Treasury Bills for the Period of 1991 – 2005

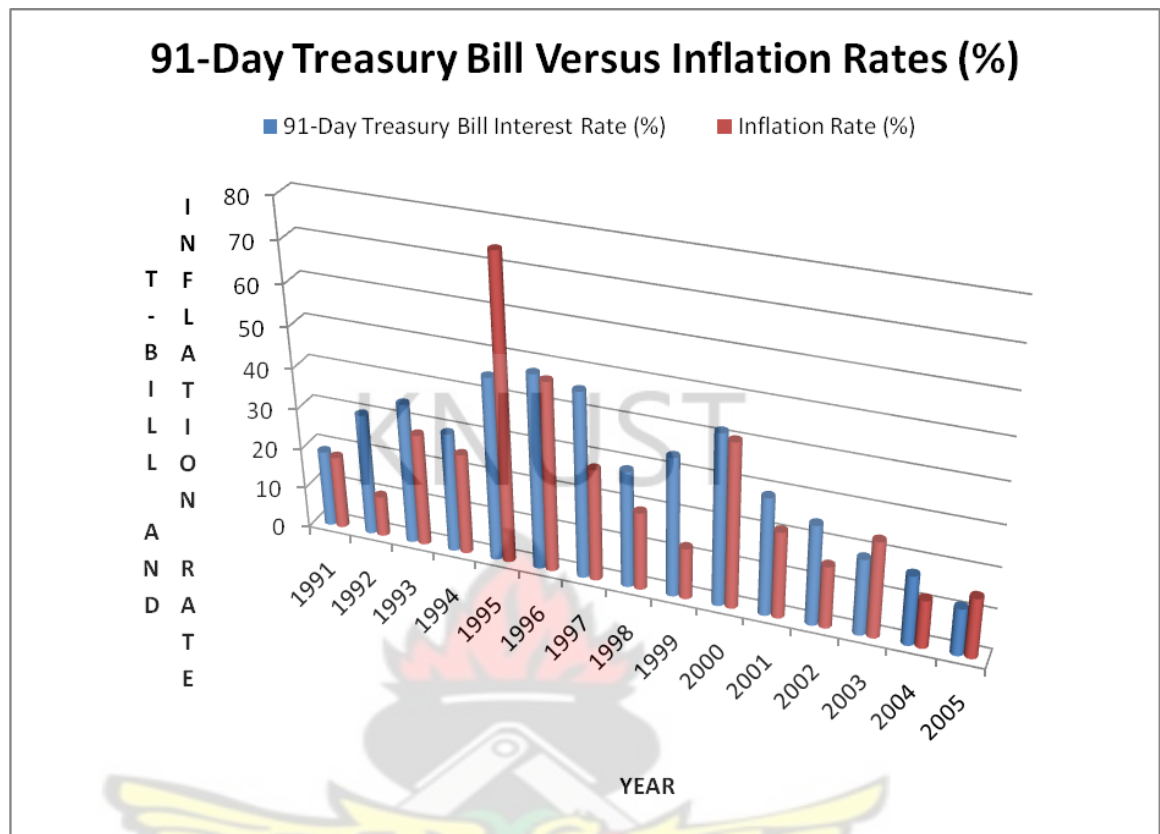
Year	91-Day Treasury Bill Interest Rate(%)	Deviation from the Average Return(r-R)	Squared Deviations(r-R) ²
1991	18.85	(11.65)	135.75
1992	30.10	0.40	0.16
1993	34.78	4.28	18.31
1994	29.50	(1.00)	1.00
1995	45.10	14.60	213.16
1996	47.80	17.50	306.25
1997	45.68	15.18	240.43
1998	28.70	(1.80)	3.24
1999	34.19	3.69	13.61
2000	41.99	11.49	132.02
2001	28.94	(1.56)	2.43
2002	24.61	(5.89)	34.69
2003	18.70	(11.80)	134.24
2004	17.08	(12.42)	154.25
2005	11.53	(18.97)	349.86

Source: Researchers own elaboration from field work.

Standard Deviation = 10.75

Table 3 above also shows that Standard Deviation for Treasury bills for the period was 10.75%, implying that the yearly returns (actual returns) deviated from the average returns that are Expected Returns by 10.75% representing a relatively low risk. This confirms with the finance theory mentioned above. The relationship between the nominal rate of returns and inflation rates over the period is depicted on the figure below.

Figure 4 T – Bill rates versus inflation (1991 - 2005)

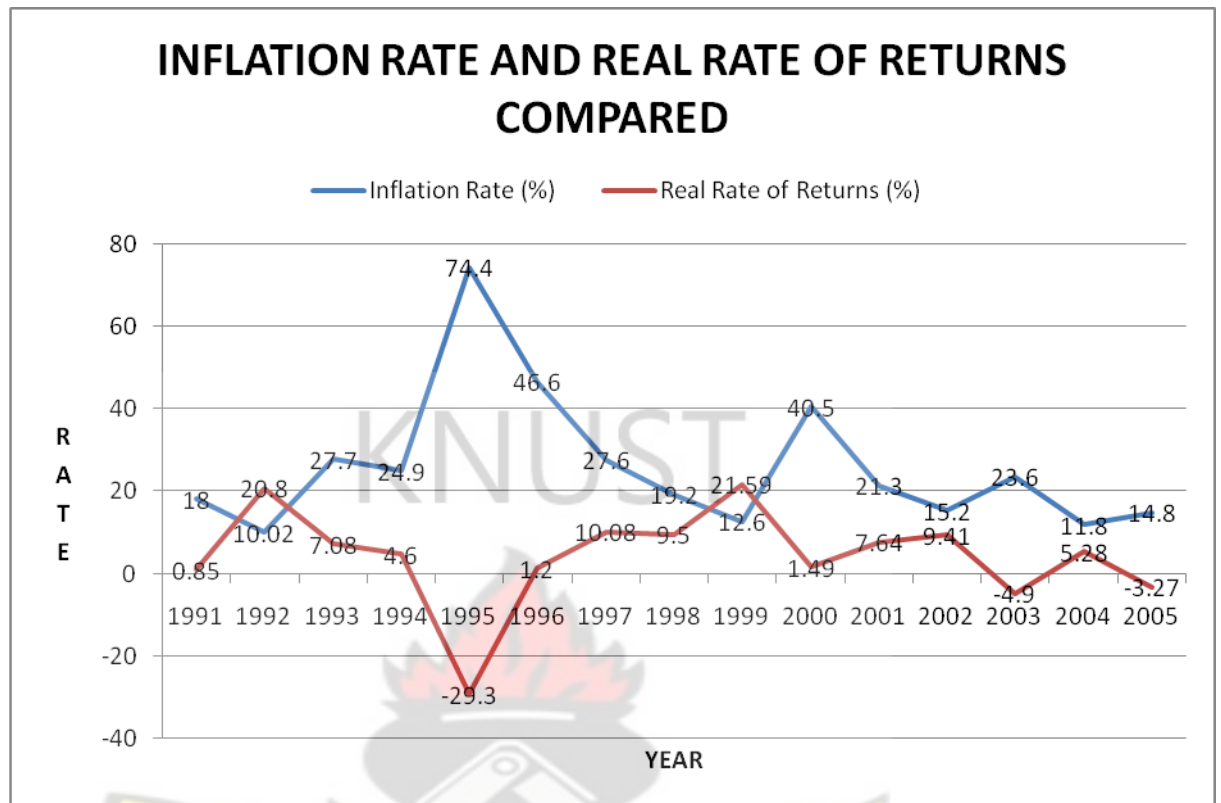


Source: researcher's own elaboration from field work

Fig 4 shows the rates of inflation and treasury rates for the period 1991 -2005.

It can therefore be argued that, to gain a higher return on one's investments therefore one ought to take a higher risk in terms of investments. Shares as said earlier in this work, is of a higher risk than treasury bills. Therefore the researcher proceeds to analyze shares or equity investments over the same period to ascertain the level of truthfulness of this theory. Figure 5 below is line graph showing the comparison between inflation rates and real rate of returns on treasury bills for the period 1991-2005

Figure 5



SOURCE: Researcher's own elaboration

4.2 ANALYSIS OF CAPITAL MARKET INSTRUMENTS (GSE ALL SHARE INDEX)

The historical annual return obtainable on the capital market as represented by the GSE All- Share Index, are analyzed by comparing them with the average rate of return for the period. The annual rates of return are also compared with their corresponding annual rates of inflation to see how the capital market fared against inflation. The Standard Deviation and Co – efficient of variation are also calculated for use in the overall analysis.

Table 4 shows the nominal rates of return on the stock market as represented by the GSE index for the period 1991 – 2005. From which the average rate of returns for each year, Standard Deviation have been calculated.

Table 4: Nominal Returns, Real Rate of Returns, Rates of Inflation and Standard Deviation for GSE shares in Ghana for the Period 1991 – 2005.

Year	Nominal rate of return %	Rate of inflation %	Real Rate of return %	Deviation from average return ($r_i - R$)	Squared deviation ($r_i - R$) ²
1991	(7.95)	18.0	(25.95)	(50.26)	2526
1992	(3.63)	10.02	(13.65)	(45.94)	2110
1993	113.74	27.7	86.04	71.43	5102
1994	124.34	24.9	99.44	82.03	6727
1995	6.33	74.4	(68.07)	(35.98)	1295
1996	13.82	46.6	(32.78)	(28.49)	812
1997	41.65	27.6	14.05	(0.66)	0.4356
1998	69.69	19.2	50.49	27.38	750
1999	(15.22)	12.6	(27.82)	(57.53)	3310
2000	16.55	40.5	(23.95)	(25.76)	664
2001	11.42	21.3	(9.88)	(30.89)	954
2002	45.96	15.2	30.76	3.65	13.3
2003	154.67	23.6	131.07	112.63	12625
2004	91.32	11.8	79.52	49.01	2402
2005	(28.05)	14.8	(42.85)	70.36	4951
Average Return	42.31	25.88	16.56		

Source: Ghana Stock Exchange, Statistical Service of Ghana and Researcher's Own

Elaborations

Standard Deviation = the Square root of the variance = $\sqrt{2949} = 54.30$

Table (4) shows that nominal annual returns on the stock market for the period 1991 – 2005 ranged between -28.05 % and 154.67 % with an average annual return of 42.31%. In 1993, 1994, 1998, 2002, 2003 and 2004 the market made above

average returns. Returns on the market for 2003 in particular were splendid. The position of Investor A, who invested the same amount of money as investor B above (that is GH¢1,000) in 1991 is analyzed as follows: the return rates achieved means that, the nominal value of his portfolio will be GH¢69,707 at the end of 2005, the real value of the investment at the end of the period, that is after considering inflation trends over the period will however be GH¢1,424 (Ref .Appendix B)

The Table further shows average real returns of 16.56%, this shows that the average investor is being rewarded above the general increases in prices over the period. This is consistent with finance theory. In terms of the risk of shares, the table shows that the Standard Deviation of returns on the market was 54.30 % which means that actual returns deviated from the average return (expected return) by as much as 54.30 % an indication of high risk. This again is consistent with finance theory. Figure 6 below depicts nominal returns on stock exchange traded shares for the period 1991-2005.

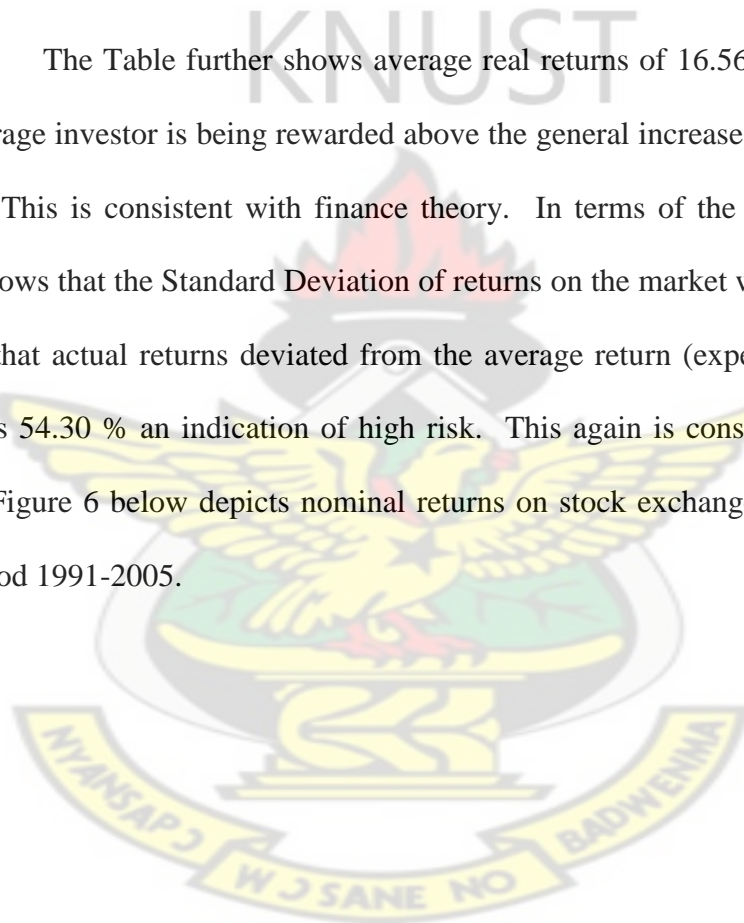
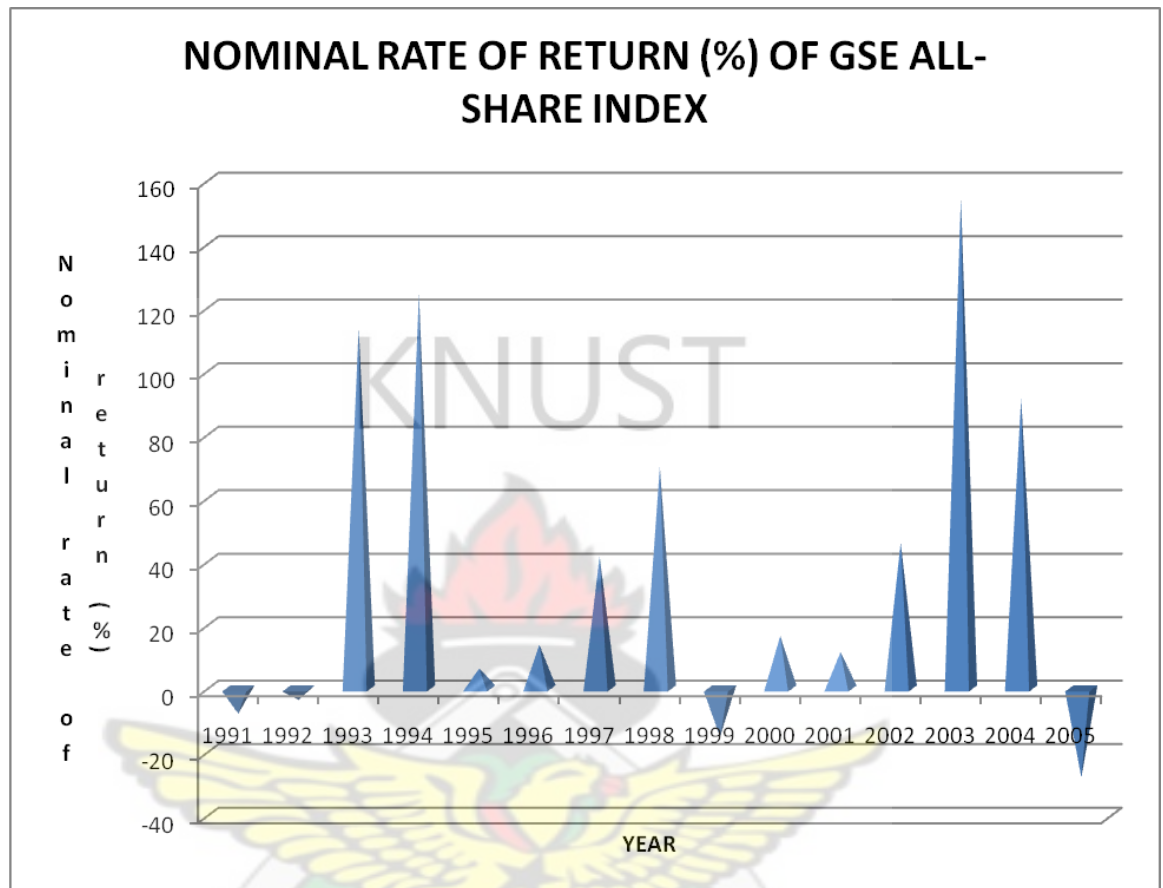


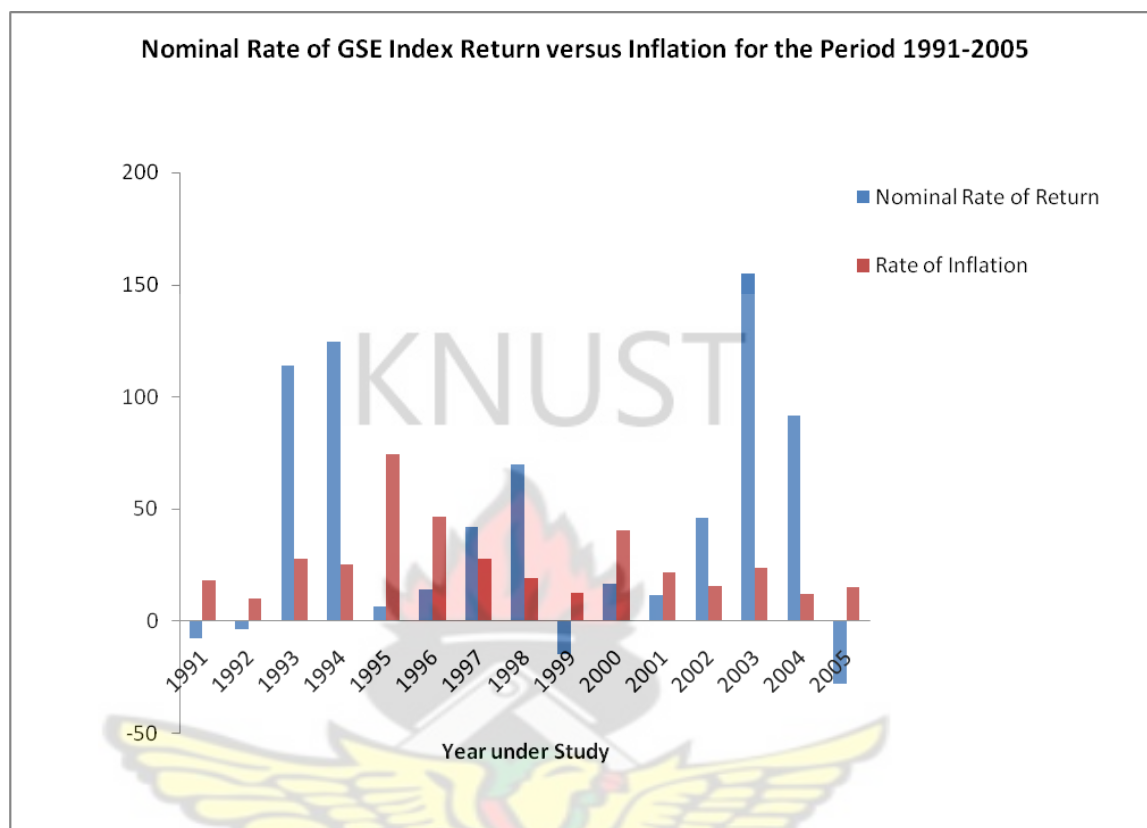
Fig 6 GSE Nominal Returns for the period 1991 – 2005



Source: researchers own elaboration from field work

Figure 7 is a graph showing the relationship between inflation and the nominal annual rate of returns on the stock (capital) market for the period 1991 – 2005.

Figure 7 GSE Nominal Returns versus inflation rates (1991 - 2005)



Source: researcher's own elaboration from field work

Table 5 Summary of results for the period 1991 – 2005

	Average annual nominal returns %	Average annual real returns %	Standard Deviation %	Co-efficient of Variation
91 – Day Treasury Bill	30.50	4.13	10.75	0.35
GSE Index	42.31	16.56	54.30	1.28

Source: Researchers own elaboration

From the Table above, it is clear that reward was being gained for bearing risk. However in the case of Investor A and B analyzed above, B turned to have a higher amount of money in real terms at the end of the period. This finding would on the surface seem to be inconsistent with economic theory. However, it must be pointed out that these investments are exposed to both systematic risk (economy wide risk) and unsystematic risk (company specific factors). Again economic/finance theory is stated in the context of long –run returns. This study has considered fifteen (15) annual observations only. These are not enough points from which to draw observations that may be said to be holding in the long run.

4.3 RISK RETURN ANALYSIS

Finally, the researcher sought to find out whether risk was being compensated over the period. This can be measured by the level of risk premium obtained over the period.

The market risk premium can be estimated by using the average annual returns on Treasury Bill Instruments and the Average Annual Returns on GSE All-Share index. This is shown on the table 6 below. The returns from treasury bills are used as risk free to complete the risk premium of the shares investments.

Table 6 Computation of Risk Premium

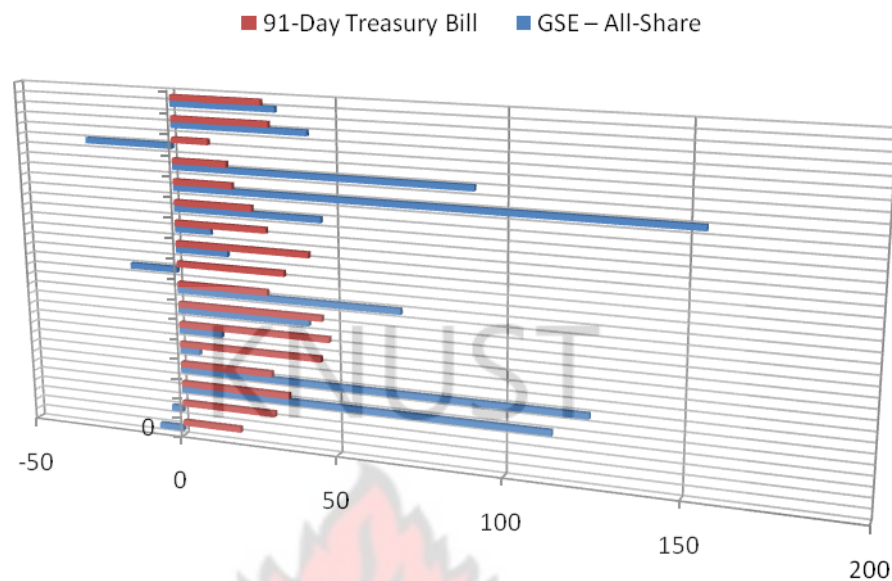
Year	GSE – All-Share	91-Day Treasury Bill	Risk Premium
1991	(7.95)	18.85	(26.80)
1992	(3.63)	30.10	(33.73)
1993	113.74	34.78	78.96
1994	124.34	29.50	94.84
1995	6.33	45.10	(38.77)
1996	13.82	47.80	(33.98)
1997	41.65	45.68	(4.03)
1998	69.69	28.78	40.99
1999	(15.22)	34.19	(49.41)
2000	16.55	41.99	(25.44)
2001	11.42	28.94	(17.52)
2002	45.96	24.61	21.35
2003	154.60	18.70	135.97
2004	91.32	17.08	74.24
2005	(28.05)	11.53	(39.58)
Arithmetic Average	42.31	30.50	11.81
Geometric Average	32.70	28.37	0.94

Source: Bank of Ghana, Ghana Stock exchange and researchers own elaboration

Table 6 indicates an average risk premium of 11.81% over the fifteen years. That is on average investors who own share would demand a premium of 11.81 % over the Treasury Bills rate to induce them to hold the share. Figure 8 below shows the comparism between the returns on GSE All-Share Index and Treasury Bills interest rates for the period 1991-2005.

Figure 8

GSE-ALL SHARE & 91-DAY TREASURY BILL COMPARED



GSE-ALL SHARE & 91-DAY T-BILL COMPARED

The Table further gives an interesting revelation that nine out of the fifteen years studied, indicated negative risk premium, meaning that investors were rather lost out, as result of taking risk and investing in shares. The results can be further analyzed using the comparative approach.

4.3.1 Return Analysis

Column 1 and 2 (Ref. Table 5) show estimates of arithmetic mean annual rates of returns (nominal and real) for treasury bills and stocks (equities) represented by GSE index for the period 1991 – 2005. The results shows that in nominal terms both treasury bills and GSE index posted positive returns over the period. However, GSE index posted a higher average rate of return of 42.31% per annum over the period. The return analysis also indicates that in real terms the GSE index performed better than Treasury bills as shown by the average real return estimates for both

instruments. The GSE index and Treasury bills recorded positive average real returns of 16.56% and 4.13% per annum respectively. The average real rate of return recorded by GSE index during the period 1991 – 2005, was relatively better hedged against inflation than the treasury bills.

4.3.2 Risk Analysis

a. Standard Deviation (a measure of risk)

Table 5 shows standard deviation of treasury bills and GSE index .The GSE Index turned to be by far riskier instruments than treasury bills. The risk involved is indicated by the standard deviation of 54.30%. Thus in terms of risk, the 91 Day – treasury bills had lower risk as measured by the standard deviation of the instrument and in terms of returns; the treasury bills recorded the lower returns in both nominal and real terms over the period of 1991 – 2005.

b. Co-efficient of Variation

The assertion is further confirmed by the Co – efficient of Variation, which measures the relative risk. In terms of co – efficient of variation, the 91 – Day Treasury bill recorded the lower co – efficient of 0.35, emphasizing the fact that Treasury bills is less risky than GSE index. The GSE index had a very high co – efficient of variation of 1.28 because of its large standard deviation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter provides the summary, conclusion and recommendations of the study.

5.1 SUMMARY

The importance of investment in the economic development of a country cannot be over emphasized. Through investment, capital is mobilized and allocation of these investible resources must be done efficiently and effectively to encourage investors. Investors who have short time expectation of returns, for instance, 2 to 3 years, can freely make available their investible funds to acquire government securities which provide short term returns on investments. However, many other investors who have long term plan of investment can seriously look at the equities listed on the Ghana Stock Exchange because there is easy way of entry and exit which are preferred to unlisted equities.

The study has revealed that GSE Index which had larger standard deviation of 54.30% also achieved the higher nominal return averaged of 42.31% as compared to the less risky instruments, Treasury bills, which had smaller standard deviation of 10.75% and correspondingly lower annual nominal returns averaged 30.50%. These results confirm the researcher's hypothesis that investments in equities have higher returns in the long run than investments in treasury bills.

The researcher sought to find out whether both investments compensate investors in terms of real returns. The study revealed that both instruments -Treasury Bills and

GSE Index- had mean annual real rate of returns of 4.13% and 16.56% respectively. This result was achieved after considering average inflation rates of 25.88% for the period of study.

5.2 CONCLUSION

The study based on the above summary has proved the hypothesis that average annual returns on both treasury bills and listed equities are normally over and above the average rate of inflation. It also confirms that hypothesis that investments in equities have higher returns in the long run than investments in treasury bills. A disclaimer however, needs to be made that future performance may differ from past performance. Investments in shares, thus appears to be a better instrument than treasury bills. Additionally investors have been adequately rewarded for bearing risk as stock exchange traded shares for the period under study returned a positive average annual risk (market risk) premium of 11.81% over treasury bills.

5.3 RECOMMENDATION

The following recommendations are proposed based on the findings and conclusions of the study.

1. Encourage Easy Access to Capital

There is the need to encourage more companies to list on Ghana Stock Exchange to facilitate mobilization of funds and also to enable investors to have easy entry and exit as and when the opportunity is created.

2. Encourage Investment in the capital Market for Long Term Reward

There is the need to encourage investment into the capital market for long term reward.

3. Macro economic Stability

Macroeconomic instability creates uncertainties and investment risks, which adversely affect financial investment. Thus, there is the need for government to pursue sound macroeconomic policies that will ensure that inflation and other factors are fairly stable, to encourage greater savings and investment. The stability will make the investors have confidence that their financial assets will not reduce in value.

4. Financial Literacy

Public education need to be carried out to improve the knowledge of the public on investment issues. The media, churches, schools and universities must campaign and educate on financial literacy issues.

5. Formation of Investment Clubs

Junior High Schools, Senior High Schools and Universities need to be encouraged to form investment clubs to create the awareness and interest of people to invest in financial instruments available in the country.

6. Encourage the Development of Collection of Investments (Portfolio Development)

There is the need to encourage the investing public to build portfolios that is collection of investments. This combines capital market instruments and money market instruments for higher returns. It is a measure to avoid the adage of “putting all eggs into one basket” but to take advantage of diversification to minimize risks at the same time achieves greater yields on investments.



REFERENCES

1. Aizeman, J. and Marion, N.(1995). *Volatility, investment and disappointment aversion. NBER Working Paper No. 5363.*
2. Aizenman, J and Marion, N. (1993). *Policy uncertainty, persistence and growth. Review of International Economics 2:145 – 163.*
3. Alesina. A. and Perotti, R. (1995). *Income distribution, political instability, and investment. NBER Working Paper No.4486*
4. Aboagye Anthony Q. Q.(2010) “*Life Beyond Treasury Bills*” *Legon Business Journal Volume 1, Pg 18 – 20*
5. Barro, R. (1991). *Policy growth in a cross section of countries, Quarterly Journal of Economics 106: 407 – 443.*
6. Bischoff, C.W.(1971). *Business investment in the 1970s: A comparison of models.*
7. Bodie, Zvi, Alex Kane, and Alan J. Marcus. *Investments*. 4th ed. Boston: Irwin/McGraw-Hill, 1999.
8. Bodie Z., Kane A. and Marcus A.J.,(1995) *Essentials of investments, 2nd Edition*, The McGraw-Hill Companies, Incorporated.
9. Brainard, W.C., and Tobin, J. (1968). *Pitfalls in financial model building, American Economic Review 58:99 – 122.*
10. Brealey R.A and Myers S.C., (1996). *Principles of Corporate Finance, 5th Edition*. The McGraw-Hill Companies, Incorporated
11. *Brookings Papers on Economic Activity, no. 1:13 – 58*

12. Chenery, Hollis B. (1952). *Overcapacity and the acceleration principle*. *Econometrica* 20:1 – 28.
13. Cheney J.M and Moses E.A., (1999). *Fundamentals of Investments*, West Publishing Company
14. Clark, M.J.(1917). *Business acceleration and the law of demand: A technical factor in economic cycles*. *Journal of Political Economy* 25:217 – 235.
15. Cottle, Sidney, Roger F. Murray, and Frank E. Block (1988). *Graham and Dodd's Security Analysis*. 5th ed. New York: McGraw-Hill.
16. Diamond, D. and Dybvig, P, (1983), “*Bank Runs, Deposit Insurance, and Liquidity*,” *Journal of Political economy*, 91,401 – 419.
17. Duesenberry, J.S. (1958). *Business cycles and economic growth*. New York: McGraw – Hill.
18. Francis J.C., (1991). *Investment: Analysis and Management*, 5th Edition, McGraw-Hill.
19. Getler, M. (1988). *Financial development and economic activity: an overview*. *Journal of Economic Literature* 25:688 – 726.
20. *Ghana Stock Exchange Securities Course* 206 pp 48-53
21. *Ghana Sock Exchange Securities Course* 101 Pp 13-16
22. Gitman, Lawrence J., and Michael D. Joehnk (1993). *Fundamentals of Investing*. 5th ed. New York: HarperCollins,.
23. Greenwood, J. and Smith B.D. (1997). *Financial Markets in development and the development of financial markets*. *Journal of Econoic Dynamics and Control* 21:145 – 181.

24. Hirt, Geoffrey A., and Stanley B. Block (1999). *Fundamentals of Investment Management*. 6th ed. Boston: Irwin/McGraw-Hill,.
25. Huq, M. M. (1989). *The economy of Ghana London and Basingstoke: Macmillan*.
26. Jorgensen, D.W (1966). *Rational distributed lag functions*. *Econometrica* 34: 135 – 149.
27. Jorgensen, D.W (1967). *The theory of investment behaviour*. In *determinants of investment behaviour* ed., Robert Ferber, Universities – National Bureau Conference Series No.19 New York, Columbia University Press.
28. Jorgensen, D.W (1971). *Econometric studies of investment behaviour: A survey*. *Journal of Economic Literature* 9:1111 – 1147.
29. Jorgensen, D.W. (1963). *Capital theory and investment behaviour*. *American Economic Review, Papers and Proceedings* 53:247 – 59.
30. Kappur et al, (1991). *Ghana Adjustment and Growth 1983 – 91, Occasional Paper* 86. Washington, DC: *International Monetary Fund*
31. Klein, L.R (1951) *Studies in investment behaviour*. *Conference on business cycles*. *Universities - National bureau conference series*.No2 New York – Columbia University Press for the National bureau of economic research.
32. Koyck, Leendert M. (1954). *Distributed lags and investment analysis*. Amsterdam: North Holland.
33. Kuh, E. (1963). *Capital stock growth: A micro economic approach*. Amsterdam: Elsevier.

34. Levine, R. 1997. *Financial development and economic growth: views and agenda*. *Journal of Economic Literature* 35: 688 – 726.
35. Mao, C.T., (1976). *Corporate Financial Decisions*, Pavan Publishers.
36. Markowitz, H. (1952). “*Portfolio Selection*.” ‘*Journal of Finance*’. Vol. 7 No.1, 77 – 91
37. Meyer, J.R and Glauber, R.R (1964). *Investment decisions, economic forecasting, and public policy*. Boston: Harvard University, Graduate School of Business Administration, Division of Research.
38. Meyer, J.R and Kuh, E.(1957). *The investment decision*. Cambridge, mass: Harvard University Press.
39. Meyer, J.R. and Strong, J.S.(1990). *Sustaining investment, discretionary investment, and valuation: A residual funds study of the paper industry*. In *Asymmetric Information, Corporation Finance, and Investment* ed R. Glenn Hubbard. Chicago: University of Chicago Press.
40. Modigliani, F. and Miller, M. (1958). *The cost of capital, corporation finance, and the theory of investment*. *American Economic Review* 48: 261 – 297.
41. Oshikoya, T.W (1994). ‘*Macroeconomic Determinants of Domestic Private Investment in Africa: An Empirical Analysis*,’ *Economic development and Cultural Change* Vol.42, No3.
42. Pattillo, C., (1998). *Investment, Uncertainty and Irreversibility in Ghana*. *IMF Staff Papers*, Vol. 45, No.3
43. Pinyck, R. (1991). *Irreversibility, uncertainty and investment*. *Journal of Economic Literature* 29:1110 – 1148.

44. Powell, R., (1989). *Economics for Professional and Business Studies*, DP Publications.
45. Ramey, G. and Ramey, V.A (1995). *Cross-country evidence on the link between volatility*
46. R. G. Ibbotson & Associates. *Stocks, Bonds, Bills, and Inflation 1997 Yearbook*. Chicago
47. Rodrik, D. (1991). *Policy uncertainty and private investment in developing countries*. *Journal of Development Economics* 36 (October): 229 – 242.
48. Serven, L. (1995). *Irreversibility, uncertainty, and private investment: Analytical issues and some lessons for Africa*. *Journal of African Economics* 6 (3) supplement: 229 – 268.
49. Serven, L. and Solimano, A. (1993). *Debt crisis, adjustment policies and capital formation in developing countries: Where do we stand*.
50. Sharpe W., Alexander G.J and Bailey J.V., (1995) *Investments, 5th Edition*, McGraw-Hill.
51. Timbergen, J. *Statistical evidence of acceleration principle*. *Economica*, May 1938, 5 (2) 164 – 76.
52. World Bank (1992) *Ghana 2000 and Beyond*. Washington, DC World Bank.

APPENDIX 'A'

LISTED COMPANIES OF GHANA STOCK EXCHANGE

1. Accra Brewery Ltd. (ABL)
2. African Champion Industries Ltd. (ACI)
3. AngloGold Ashanti Ltd. (AGA)
4. Aluworks Ltd. (ALW)
5. Ayrton Drug Co. Ltd. (AYRTN)
6. Benso Oil Palm Plantation Ltd. (BOPP)
7. CAL Bank Ltd. (CAL)
8. CFAO Ghana Ltd. (CFAO)
9. Camelot Ghana Ltd. (CMLT)
10. Cocoa Processing Co. Ltd (CPC)
11. Clydestone (Gh.) Ltd. (CLYD)
12. Ecobank Ghana Ltd. (EBG)
13. Enterprise Insurance Co. Ltd. (EIC)
14. Ecobank Transaction Inc. (ETI)
15. Fan Milk Ltd. (FML)
16. Ghana Commercial Bank Ltd. (GCB)
17. Golden Web Co. Ltd. (GWEB)
18. Guinness Ghana Breweries Ltd. (GGBL)
19. Ghana Oil Company Ltd. (GOIL)
20. Golden Star Resources Ltd. (GSR)
21. HFC Bank Ltd. (HFC)
22. Mechanical Lloyd Company. (MLC)
23. Pioneer Kitchenware Ltd. (PKL)

24. Produce Buying Ltd. (PBC)
25. PZ Cussons Gh. Ltd. (PZ)
26. Standard Chartered Bank Gh. Ltd (SCB)
27. State Insurance Company Ltd. (SIC)
28. Sam Woode Ltd. (SWL)
29. Starwin Product Ltd. (SPL)
30. SG-SSB Ltd. (SG-SSB)
31. Trust Bank Ltd. (The Gambia) (TBL)
32. Transaction Solutions Ltd. (Transol)
33. Total Ghana Ltd. (Total)
34. Unilever Ghana Ltd. UNIL)
35. UT Financial Services Ltd. (UT)
- Ref. (Ghana Stock Exchange Information Bulletin)



APPENDIX B

[illegible]

