PRICING OF OPTIONS USING THE BLACK AND SCHOLES MODEL – THE CASE OF NAIROBI STOCK EXCHANGE STOCKS

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A RESEARCH PROJECT SUBMITTED TO THE FACULTY OF COMMERCE IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, UNIVERSITY OF NAIROBI.

OCTOBER 2001

DECLARATION

This research paper is my original work and has not been submitted for examination in any other university.

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This research paper has been submitted for examination with my approval as a university supervisor.

Signed: ---------- Date: - ----------

Otieno Odhiambo Lurther

DEDICATION

To my family, Bob, Hazel and George. The MBA was important but you are my life.

ACKNOWLEDGEMENTS

My heartfelt appreciation goes to several groups of people without whom this research project would not have been possible:

To my parents, Job and Dolphine Okech, without whom I would not be in this world and who taught me that I can achieve anything I want in life and instilled in me the confidence and determination to do so.

To my supervisor, Otieno Odhiambo Lurther for his unwavering belief and support, through thick and thin, to ensure this research project was completed. Thank you for you patient but firm encouragement.

To V O Kamasara, J Karanja and W Iraki for their critical but constructive input when I needed it most.

To my fellow students, Stephen Kamanda, Matu Mugo, Paul Nguru and Evelyn Agutu for their generosity with time and ideas.

Last but certainly not least, to my best friend Bob, for the encouragement, support and understanding throughout our life together and particularly during my life as an MBA student. Without your consistent support and understanding, I would not have reached this far.

ABSTRACT

The objectives of this research were, first , to determine the level of stock volatility, for the period 1997 to 2000, on the Nairobi Stock Exchange and identify securities that warrant hedging through the use of options. Having assessed the volatilities, the second objective was to determine the range of exercise prices, for individual stocks, that would generate in-the-money European options. Thirdly, the research sought to determine whether the world re-known Black and Scholes option pricing model could be used to value options on stocks quoted on the Nairobi Stock Exchange.

The level of stock volatility on the Nairobi Stock Exchange was determined using the expected returns and monthly share price movements for each stock. Exercise price ranges were determined using a mathematical model described in detail in the research paper. Having collated all the data required to use the Black and Scholes model, option values were determined using a Black and Scholes computation software, *derivagem*.

The expected returns for stocks in the four years under review were markedly poor, which is perhaps expected, in view of the downturn in the Kenyan economy in the said period, mirrored in the performance of the Exchange. Stock volatilities were significant for all stocks on the Exchange with the exception of Kapchorua Tea Company, Limuru Tea Company and Regent Undervalued Assets Africa Fund. The latter did not trade while for Kapchorua Tea Company and Limuru Tea

Company, monthly share prices remained virtually the same during the period of study.

The mathematically determined exercise price ranges were fairly reasonable in view of the fact that they fell within actual share price movements in the periods under review and were in tandem with the individual volatilities of the stocks, that is the higher the volatility, the wider the range of mathematically derived exercise ranges and vice versa. The research indicates that the Black and Scholes option pricing model can be used to determine option values and ranges for in-the –money options for stocks quoted on the Nairobi Stock Exchange. All the data required to use the model was based on secondary market data, with stock volatility and exercise price ranges being determined mathematically using historical data.

The study gives useful insight into the performance of the Exchange (in specific, returns and volatilities of stocks quoted thereon) and offers to investors and fund managers an alternative means of managing the risks of their quoted investments, by hedging through the use of options. To the regulatory authority, the study gives the practicalties of pricing options in a Kenyan context, which will be crucial in order to effectively establish the options exchange (fourth segment) in Kenya. Being a pioneer study in option pricing, the study opens an avenue for further extensive research by Kenya's academia.

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1.0 CHAPTER ONE: INTRODUCTION

1.1.1 Background

Options fall under the class of investments known as derivatives. A derivative (or derivative security) is a financial instrument whose value depends on the values of other, more basic underlying variables. Derivatives are used by investors to reduce risk, change/manage the nature of one's financial exposure and reduce transaction costs. In recent years, derivatives have become increasingly important in the world of finance. Futures and options are now traded actively on many exchanges. Forward contracts, swaps, and many different types of options are regularly traded outside exchanges by financial institutions, fund managers and corporations in what is termed the over-the-counter market. Derivatives also often form part of a bond or stock issue.

An option is an investment vehicle that offers the option buyer the right, but not the obligation, to buy or sell a particular asset at a given price for a specific period of time for a market premium. The underlying asset, the option type, strike price and expiration date identifies options. The underlying asset is the specific stock or commodity that the option conveys to the purchaser when the option is exercised. The underlying asset may be available in stocks, stock indices, foreign currencies, debt instruments, commodities and futures contracts. In all, an option is a right but not an obligation to buy.

There are two distinct types of options: calls and puts. A call gives the holder the right to buy an asset at a fixed strike price. A put, on the other hand, gives the holder the right to sell an asset at a fixed strike price. Five items are needed to specify an option- the underlying asset, date of expiration, exercise price and whether the option is a call or a put.

The strike price or exercise price is the stated price at which the buyer of the call has the right to buy a specific contract, or the price at which the buyer of a put has the right to sell a specific contract. In accordance with the standardized terms of their contracts, all options expire on a certain date, called the "expiration date". For conventional listed options, this can be up to nine months from the date the options are first listed for trading. There are longer-term option contracts, called LEAPS, which can have expiration dates up to three years from the date of the listing. *(Chicago Board Options Exchange-CBOE-2000)*

An "American option" is an option contract that may be exercised at any time between the date of purchase and the expiration date. Conversely, a "European option" (used primarily for cash settled options) can only be exercised during a specific period of time just prior to expiration. The strike prices and expiration dates are established by the various exchanges on which options are traded. These are referred to as standard options.

Derivatives with more complicated payoffs than the standard European or American calls and puts are referred to as exotic options. Most exotic options trade in over the counter market and have been designed to meet the particular needs of corporations.

Options can be In The Money (ITM), At The Money (ATM), or Out of The Money (OTM). A call option is In The Money if its strike price is lower than the underlying market price, thus making it advantageous to exercise the option. A put option is In The Money if its strike price is higher than the underlying market price. An option is said to be At The Money if the option holder does not lose or gain whether he exercises his option or buys or sells the asset from the market. In this case the market price would be equal to the exercise price plus the premium paid to purchase the call option. An option is Out of the Money if it is not advantageous to exercise it (the exercise price is higher than the market price). Out of the Money (OTM) options cost less than In the Money (ITM) options.

The holder of an option has to pay a price for obtaining a call or put option. The price will have to be paid whether or not the holder exercises his option, and is called the option premium. The potential loss to the buyer of an option can be no greater than the initial premium paid for the contract, regardless of the performance of the underlying stock. This allows

an investor to control the amount of risk assumed. On the contrary, the seller of the option, in return for the premium received from the buyer, assumes the risk of being assigned if the contract is exercised. *(CBOE-2000)*

Until the establishment of the Chicago Board Option Exchange (CBOE) in 1973, there was no secondary market in options on common stock. Thus, an investor in a call option could either exercise it or permit it to lapse but could not sell the option to another party. The establishment of the CBOE allowed options to be traded. The primary advantage of an options exchange is that it permits the investor to get in and out of options at any time before the option expires. A second advantage of a traded options exchange is lower transactions costs. Before the CBOE was established, buying options involved high transaction costs for a variety of reasons, including the number of middlemen involved. The CBOE set up a computerized low-cost operation, administered by the Options Clearing House, that allows the purchase and sale of options with standardized periods of maturity and exercise prices. The result is that trading in options has increased enormously across the globe and particularly in the western world. *(CBOE-2000)*

1.1.2 Factors affecting option pricing

There are five major factors that determine the price of an option:

- The price of the underlying asset vis-à-vis the strike price of the option;
- The volatility of the underlying asset;
- The time remaining until the option expires
- The rate of interest
- Dividends

The price of the underlying asset vis-a vis the strike price of the option

The higher the stock price for a given exercise price, the greater the value of a call option. The option is worth at least the positive difference between the stock price and the present value of the exercise price.

The volatility of the underling asset

The more volatile the underlying common stock, the more valuable the option. Volatility is a measure of the amount by which an asset price fluctuates in a given time. Mathematically, volatility is the annualized standard deviation of the asset daily price changes.

There are two types of volatility: statistical volatility and implied volatility. Statistical volatility is a measure of actual asset price changes over specific period of time. Implied volatility is a measure of how much the "market

place" expects asset prices to move, for an option price. That is, the volatility that the market itself is implying. *(Dr H S Sharaway-2000)*

Options are valuable precisely because of the risk of the underlying common stock. An investor would not invest in an option to purchase a completely riskless common stock with an exercise price equal to the current market price.

The time remaining until the option expires

The longer the maturity of the option, the more valuable it is. The reason is that the holder of the call option benefits when the stock price rises, and a longer maturity of the option provides more opportunities for the stock price to rise.

A longer maturity essentially provides more time for the stock price to drift to a level where it would be profitable to exercise the option.

The rate of interest

The higher the risk free interest rate, the higher the value of the option. A higher interest rate increases the value of an option because it reduces the present value of the exercise price (and the present value of the dividends on the underlying stock).

Price of
Call option > Price of stock- Present value of dividend- Present value of
Exercise price

The exercise price can be viewed as the face value of a loan to the purchaser of the call option. The "loan" is repaid when the option is exercised. The present value of a loan decreases as the interest rate increases. Thus an increase in the interest rate reduces the present value of the effective liability and therefore increases the present value of the option.

Dividends

Payment of dividends reduces the asset's market value, converting the investor's return from capital appreciation to cash flow. Thus, other than the tax implication of this conversion, the underlying asset's owner should not lose any overall net worth over the payment of the dividend. On the other hand, the problem for the prospective call option owner is that he will not receive the dividend. Therefore the reduction in the present value of the stock will reduce the value of the derivative contract. Being rational, he will reduce the price he is willing to pay for the call option on the dividend bearing securities. Consequently, dividends become a fifth factor in the option valuation process.

Various scholars have over the past century, come up with models for pricing options. The one that has however gained worldwide acceptance both in the academic and professional world is that which was developed by Fischer Black and Myron Scholes and is popularly referred to as the Black and Scholes model, or simply, the B-S model. Fischer Black was then a Partner at Goldman Sachs and Company, New York, while Myron Scholes was the Frank E Buck Professor of Finance at Stanford University. The model has been pivotal to the growth and success of financial engineering in the 1980s and 1990s. In 1997, the importance of the model was recognized when Myron Scholes and Robert Merton (who did various extensions of the model as indicated in the literature review of this research paper, pages 25 to 28) were awarded the Nobel prize of economics. Sadly, Fischer Black died in 1995, otherwise he also would undoubtedly have been one of the recipients of this prize.

The Black-Scholes valuation model holds that the value of a call option is a function of the price of the underlying security, the exercise price, the time to maturity, the risk free rate and the stock volatility (factors earlier identified as determining the pricing of an option) i.e. $C = f(S, X, T, RFR, v)$ where C is the value of the option, S is the share price, X is the exercise price, T is time to maturity/expiration of the option, RFR is the risk free rate and v is the stock volatility. The share price and the risk free rate are observable market factors, while the exercise price and the time to

expiration are normally defined by the option contract. The only variable that an investor must provide is v, the stock volatility.

Many academic papers have proposed more complicated models only to conclude that the simple Black and Scholes model can be modified to give almost equally good results. (See empirical studies on the model as indicated under the literature review section of this research paper, pages 28 to 40).

1.2.1 The case for options in Kenya

The 1999 Economic Survey cited a number of factors contributing to the slow down of the economic growth of Kenya, in particular the poor state of infrastructure, inadequate power supply, telecommunication services, depressed investments, declined level of tourism, depressed manufacturing production, rising costs of inputs and poor world commodity prices in addition to continued high level of interest rates.

The situation did not improve in the year 2000 when, in addition to the above problems which did not improve at all, the country was faced with acute power rationing which seriously dented the performance of the majority, if not all sectors of the economy. In addition, threats from globalization and the never-ending circus of political intrigues continues to compound the problem in the year 2001.

All the above translate into high risk, that is, making investing in Kenya a relatively risky business. The need to manage risk is therefore real.

The performance of the stock market is a mirror of the performance of the economy and the level of performance in the Nairobi Stock Exchange was and continues to be attributed to the economic downturn that has continued to significantly affect corporate earnings, dividend payout and turnover.
The fluctuations in the market share prices and therefore the stock market index is directly related to stock volatility which is defined as the measure of the amount by which an asset price fluctuates in a given time. Mathematically, volatility is the annualized standard deviation of the asset daily price changes. As a result of the volatility on the NSE, investment firms such as ICDC Investment Company and pension funds have and continue to recognize significant losses on revaluation of their quoted investment portfolio and on the sale of majority of securities listed on the Exchange. Investors are particular about lopsided risk and would like to eliminate it. Vehicles for eliminating risk, options being one of them, are invaluable to developing economies.

In evaluating a form of investment, such as in stocks, an investor is concerned with the expected return (which may be in the form of capital appreciation or cash flow in the form of dividends) and the risk of the investment. If there existed certainty, the return would be expected and

there would be no risk. Risk in an investment implies variability of returns. This variability in returns hampers the ability to better plan ahead by projecting the future cash flows. Hedging would assist one to better plan ahead by, projecting cash flows that would not be affected by the whims of the financial markets.(*Jorion and Cheery* (1991). Increasing volatility in the financial markets has led to rise in the importance of risk management techniques using derivative securities such as options, which allows parties to hedge against stock volatility.(*Walmsley 1988*)

Recall that options give the holder the right but not obligation to buy (in the case of a call option) or sell (in the case of a put option) an asset at a certain specified time and a specific price.

If an investor anticipates a certain directional movement in the price of a stock, the right to buy or sell that stock at a predetermined price, for a specific duration of time can offer an attractive investment opportunity. The decision as to what type of option to buy is dependent on whether the investor's outlook for the respective security is positive (bullish) or negative (bearish). If the outlook is positive, buying a call option creates the opportunity to share in the upside potential of a stock without having to risk more than a fraction of its market value. Conversely, if a downward movement is anticipated, buying a put option will enable one to protect against the downside risk without limiting profit potential. Purchasing options offers one the ability to position oneself according to

your market expectations in a manner such that you can both profit and protect with limited risk. *(CBOE-2000)*

In the Kenyan context where traded options are yet to be introduced, a limitation of a study on option pricing would be the fact that there would be no actual market prices to be compared with the theoritical/model prices that would be generated using the Black and Scholes option pricing model. However, as indicated in the literature review of this research paper, even the pioneer study by Black and Scholes in 1973 was undertaken under similar circumstances and over 25 years later and following several subsequent empirical studies , the results of their findings have been found to be fairly accurate and no superior model is yet to be identified. The comparison of the theoritical values determined by this study to the actual prices when the fourth segment of the Nairobi Stock Exchange (the Options Exchange) is operationalized, would be just one of the many opportunities for further research in option pricing in Kenya. The challenge in the Kenyan context is to identify the stocks whose volatility is significant enough to justify investors/portfolio managers investing in options to hedge against bullish and/or bearish movements in the market and the range of exercise prices that give options on such securities positive values (thus making it worthwhile to invest in the option contract and pay upfront the required premium/option value). Having identified stock

volatility and exercise prices, the option values are easily derived using the world-reknown Black and Scholes model.

1.2.2 Recent developments on the Nairobi Stock Exchange

In its paper *"A reform strategy on proposed fundamental reorganization of Kenya's capital market"* (Revised 29 March 2000), the Capital Markets Authority (CMA) indicated its proposal to reorganize the Nairobi Stock Exchange market operations into four independent segments which would have specific defined eligibility and disclosure requirements for the purpose of listing in each of the market segments. Each market, depending on the degree of the underlying risks pertaining to the nature of securities listed therein, would have its own defined categories of investors such that some segments may be restricted to specific institutional investors and high net worth individuals only. The 4 segments are namely:

- Main Investments Market Segment (MIMS)

  This represents the main quotation market for the NSE and has stringent eligibility and disclosure requirements. It essentially adapted the previous listing of the NSE but has been further subdivided into agricultural, commercial and services, finance and investment and allied segments.

- Alternative Investment Market Segment (AIMS)

  This segment is aimed at providing access to the capital markets to small and medium sized companies with high growth potential and

currently includes such firms as Kapchorua Tea Company, George Williamson Kenya, Eaagads and A Baumann & Company.

- Fixed Income Securities Market Segment (FISMS)

  This segment is aimed at providing a separate market for fixed income securities such as treasury bills, corporate bonds, preference shares and debenture stocks. It could also list other forms of short-term financial instruments such as treasury bills and commercial papers. It currently lists Kenya Power and Lighting Company/Marshalls/Lonhro/Kenya Orchards preference shares.

- Futures and Options Market Segment (FOMS)

  The fourth segment of the Exchange which should be established in the short term (2 to 5 years) and is the area of interest for this research project, "is aimed at providing a mechanism to market participants to hedge/offset their risks against adverse movements of variables over which they have no control. It will also help promote market efficiency. FOMS will offer additional investment opportunity to institutional investors and high net worth individuals and will have its own eligibility and listing requirements".

The paper goes further to state that the market segment is to be implemented after further development of necessary operational and institutional support. The preliminary work and study was to be completed by June 2001 and an implementation timetable announced.

knowledge required to perform a specific task or be responsible for a specific risk exposure. Such an examination policy is already compulsory for traders on most regulated exchanges across the globe.

- Enhancing information standardization and disclosures at all levels of the fourth segment.

  The Authority would have to enforce the publication of complete information on the options' products specifications, on trading activity and harmonization of accounting standards. It would also be necessary to institute the legal framework within which the derivatives market would operate. The adoption of International Accounting Standards(IAS) by Kenya will greatly facilitate the harmonization of accounting standards and IAS 39 gives the minimum disclosure requirements that an organization dealing in derivatives needs to disclose in its financial statements.

- Identification of the securities that should have options traded on the fourth segment and the exercise prices for such options.

  An Exchange must specify the terms of the option contracts it trades. In particular, it must specify the size of the contract, the precise expiration date and the strike/exercise price.

The above forms the heart of this research project.

1.3.1 Statement of the problem

Investors and managers of equity portfolios have a choice between two styles of management: passive versus active management of their portfolios. Three generic themes are available to active portfolio managers to time the market and add value to their portfolios in comparison to the market benchmark. Firstly, they can try to time the equity market by shifting funds in and out of stocks, bonds and treasury-bills depending on broad market forecasts and estimated risk premiums. Secondly, they can shift funds among different equity sectors and industries or among investment styles to catch the next "hot" concept before the rest of the market does. Thirdly, equity managers can do stock-picking, looking at individual issues in an attempt to find undervalued stocks-ie buy low and sell high.

Trading in options would enable investment managers to proactively manage their portfolios by enabling them to position themselves according to their market expectations in a manner such that they can both profit and protect their investments with limited risk.

Risk management is the heart of good corporate governance and in view of the continued instability and erratic price movements of stock prices at the Nairobi Stock Exchange, it is imperative that investors/fund managers

identify and properly hedge against share price movements through use of options.

1.3.2 Objectives of the study

- To assess the level of stock volatility on the Nairobi Stock Exchange and identify which securities warrant hedging through options;
- To determine the range of exercise prices, for individual stocks, that would generate in the money European options
- To determine option values using the Black and Scholes Option pricing Model

1.3.3 Importance of the study

Academic community

To the academic community, this study will provide a body of knowledge regarding options and their pricing and hedging strategies. The research is also expected to provide a basis for further research in a related field.

Regulatory authorities

The study will provide insight to the regulatory authorities, namely the Capital Markets Authority and the Nairobi Stock Exchange, on checks and balances that have to be put in place before the full introduction of option trading in Kenya.

Investment advisors/stock brokers

In order to guarantee regulation in the derivatives market, the managers, traders and other derivative dealers must receive the proper incentives when hedging, trading or speculating with those instruments. They can only do this if they fully understand how the instruments work. This study aims to show how option pricing and trading strategies can be determined.

Investors

Confidence is only available to those market participants who have access to all the relevant information. By educating investors what options are and how they can be used in a Kenyan context, the study will boost confidence in option trading in Kenya.

Having given the background information on options and factors affecting their value and the need for research in this area in Kenya, it is important to look at what research work and studies have been done on the subject of options pricing. Chapter two covers the literature review on option

pricing with particular emphasis to research work using the Black and Scholes option pricing model.

2.0 CHAPTER TWO: LITERATURE REVIEW

This chapter is divided into 5 sections. The first section provides an overview of option pricing models developed to date. The second section reviews the original Black and Scholes option pricing model. The third section looks at the various extensions of the Black and Scholes model. The fourth section reviews research work on empirical tests of the Black and Scholes model. And finally, the fifth section provides a summary of the conclusions from the various research work.

2.1 Option pricing models

The valuation of options has been the subject of research over a long period of time. Early work started with *Bachelier* (1900) who recognized that the option value depended (or was contingent) on the value of the underlying share and attempted a valuation by modeling the behavior of the price of the share over time. This approach culminated in the work of *Boness* (1964) who assumed that share prices were log-normally distributed and derived a valuation by estimating the expected value of the call option at its expiration and discounting the value back to the date of valuation. *(C Ward-1985)*

Other work done on option valuation included *Sprenkle* (1961), *Ayres* (1963), *Boness* (1964), *Samuelson* (1965), *Baumol, Malkiel and Quandt* (1966) and *Chen* (1970). They all produced valuation formulas of the same

general form (with options expressed in the form of warrants) which were however incomplete as they all involved one or more arbitrary parameters. Sprenkle's formula for the valuation of an option is written as follows:

$kxN(b_1)-k^*cN(b_2)$

Where,

$$b_1 = \frac{In\ kx/c + 1/2\ v^2\ (t^*-t)}{v\sqrt{(t^*-1)}}$$

$$b_2 = \frac{In\ kx/c - 1/2\ v^2\ (t^*-t)}{v\sqrt{(t^*-1)}}$$

Where,

x = *stock price*

c = *Exercise price*

t^*= *Maturity date*

t = *Current date*

v^2=*Variance rate of the return on the stock*

In= Natural logarithm

N (b)= Cumulative normal density function

k, k= Unknown parameters*

Sprenkle (1961) defined k as the ratio of the expected value of the stock price at the time the warrant matures to the current stock price, and k* as the discount factor that depends on the risk of the stock. He tried to estimate the values of k and k* empirically but was unable to do so.

Samuelson (1965) had unknown parameters α and β where α is the rate of expected return on the stock and β is the rate of expected return on the warrant or the discount rate to be applied to the warrant. He assumed that the distribution of possible values of stock when the warrant matures is lognormal and took the expected value of this distribution, cutting it off at the exercise price. He then discounted this expected value to the present value at the rate β. Unfortunately, there is no model of the pricing of securities under conditions of capital market equilibrium that would make this an appropriate procedure for determining the value of a warrant.

Samuelson and Merton (1969) subsequently recognized the fact that discounting the expected value of the distribution of possible values of the warrant when it is exercised is not an appropriate procedure. They advanced the theory by treating the option price as a function of the stock price. They also recognized that the discount rates are determined in part by the requirement that investors be willing to hold all of the outstanding amounts of both the stock and the option. They, however, did not make use of the fact that investors must hold other assets as well, so that the risk of an option or stock that affects its discount rate is only that part of the risk that cannot be diversified away. Their final formula depended on the shape of the utility function that they assumed for the typical investor.

There are two main types of option pricing models that have been developed in the recent past, the Black and Scholes model (1973) and the binomial model developed in 1979 by Cox, Ross and Rubinstein. This research project focuses on the Black and Scholes model which to date remains the cornerstone of option pricing in the world .

2.2 The Black and Scholes option pricing model

The Black and Scholes option pricing model, commonly referred to as the B-S Model was developed in 1973 by Fischer Black and Myron Scholes. The model gives the expression for the value of an option in an infinite number of subperiods before the expiration of the option, assuming continuos trading, and is in the following format:

$$C = S * N(d1) - E * N(d2)/e^{rt}$$

Where:

C = Price of the option

S = Current price of the stock

E = Exercise price (or striking price)

t = Time remaining before expiration of the option usually expressed as a proportion of a year.

r = Continuously compounded riskless rate of interest per period

e = Base of the natural logarithm, or 2.71818

N (d) = The probability that a normally distributed random variable with a mean of zero and a standard deviation equal to one will have a value less than or equal to d

$$d1 = \frac{In\ (S/E) + (R + 0.5\ v^2))\ t}{v*\sqrt{t}}$$

$$d2 = d1 - v*\sqrt{t}$$

Where v = standard deviation of the continuously compounded rate of return on the stock, in other words, stock volatility

In arriving at the formula, Black and Scholes assumed "ideal conditions" in the market for the stock and for the option. These included the following:

- The short term interest rate is known and is constant through time
- The stock price follows a random walk in continuous time with a variance proportional to the square of the stock price. Thus the distribution of possible stock prices at the end of any finite interval is lognormal. The variance rate of the return on the stock is constant.
- The stock pays no dividends or other distributions
- The option is "European"; that is, it can be exercised only at maturity
- There are no transaction costs in buying or selling the stock or the option
- It is possible to borrow any fraction of the price of a security to buy it or to hold it, at the short-term interest rate.
- There are no penalties to short selling. A seller who does not own a security will simply accept the price of the security from a buyer, and will agree to settle with the buyer on some future date by paying him an amount equal to the price of the security on that date.

The B-S model assumes that stock price movements can be described by a statistical process known as *geometric Brownian Motion*. Ultimately, this process is summarized by the volatility factor, *v,* which is analogous to the investor's stock price forecasts in previous models. That is, a stock's return from the present through any future period has both an expected component and a "noise" component, where *u* is the mean return and *e* is the standard normally distributed random error term.

Under the above assumptions, the value of the option will depend only on the price of the stock and time and on variables that are taken to be known constants. Thus, it is possible to create a hedged position, consisting of a long position in the stock and a short position in the option, whose value will not depend on the price of the stock, but will depend only on time and the values of known constants. *(Black and Scholes-1973)*

2.3 Extensions of the model

Merton (1973) showed that the option value as given by the B-S equation increases continuously as any one of t*, r, or v^2 increases. In each case, it approaches a maximum value equal to the stock price.

The B-S valuation model was derived under the assumption that the option can only be exercised at time t* (i.e, a European Option). However, *Merton* (1973) has since shown that the value of the option is always greater than

the value it would have if it were exercised immediately. Thus, a rational investor will not exercise a call option before maturity, and the value of an American option call is the same value as a European call option.

Merton (1973) has also shown that the value of an American option will be greater than the value of a European put option. This is true because it is sometimes advantageous to exercise a put option before maturity, if it is possible to do so. For example, suppose the stock price falls almost to zero and that the probability that the price will exceed the exercise price before the option expires is negligible. Then it will pay to exercise the option immediately, so that the exercise price will be received sooner rather than later. The investor thus gains the interest on the exercise price for the period up to the time he would otherwise have exercised it.

The uncertainty over the possibility of early exercise makes the derivation of an exact closed–form analog of the B-S Equation an elusive goal. Instead, *Roll, Geske and Whaley* have designed elaborate approximation procedures for estimating the value of American style calls, which have proven quite useful in practice. A formal summary of these models is beyond the scope of this project: however, the following fundamental properties could be observed.

An American put or call has to be at least as valuable as its European style counterpart because, by definition, the American option gives the holder more chances than the simpler contract. In other words, the American contract holder can exercise at the same time as the European option owner (ie at expiration) as well as any point prior to the terminal date. Since we have seen that an option's value ultimately derives from the choice to exercise the agreement or not, a better set of terms for that decision means a more valuable contract.

Merton (1973) also extended the model by assuming that dividends are paid on the underlying stock and that interest rates are variable over the life of the option. The Black and Scholes model assumed that no dividends were paid. There are three ways in which the model may be approximately adjusted to allow for dividends. The most obvious method is simply to subtract, from the underlying share price, the discounted value of the dividends which will be received by the shareholder before the option expires. This method may underestimate the value of the call if the option is exercised before it expires, and *Black* (1975) suggests the alternative method of reducing the exercise price by the present value of the dividends expected between the date at which the option is exercised and the expiration of the option. The third method proposed by *Merton* (1973) assumes that dividends are paid continuously over the life the option at a

constant dividend yield. The adjustment involves replacing the share prices by Se^{-DT}

Where D is the dividend yield and T is the life of the option

All the above methods are approximations only because the payment of dividends introduces an ambiguity into the time at which the option will be exercised. In the absence of dividend payments it will always be optimal to wait until the day on which the option expires and the valuation of 'American' and 'European' –type options will coincide. More generally, traded options are 'American' and thus the formulae have to be interpreted either as lower bounds or approximations to the valuation. *(C Ward-1985)*

2.4 Empirical tests of the Black and Scholes Option Pricing Model

The Black and Scholes study

The earliest empirical test of the Black-Scholes Option Pricing Model (OPM) was done by Black and Scholes themselves (1973). They used data from over-the-counter option market (OTCOM) for contracts written on 545 securities between 1966 and 1969. Options traded on the OTCOM did not have standardized exercise prices or maturity dates; however, they were 'dividend protected". Whenever the common stock went ex-dividend, the

exercise prices on outstanding options were lowered by the amount of the dividend.

The secondary market in nonstandardized OTCOM options was virtually non-existent. Therefore Black and Scholes adopted a test procedure that used the OPM to generate the expected prices of each option on each trading day. By comparing the model prices with actual prices at the issuing date, they divided options into those "overvalued" and those "undervalued" by the market. For each option bought (if undervalued) and sold (if overvalued) a perfectly risk-free hedge portfolio was formed by selling or buying shares in the underlying stock.

Black and Scholes computed the systematic risk of the hedge portfolio by regressing its excess returns against a market index. The results verified that it has a beta not significantly different from zero (even though the hedge was not adjusted continuously).

Their results showed that (given *ex post* estimates of actual variances of the returns on the underlying stock over the holding period), in the absence of transaction costs, buying undervalued contracts and selling overvalued contracts at model prices produced insignificant average profits. However, when *ex ante* variances were estimated from the past stock price histories, buying undervalued contracts and selling overvalued contracts at model

prices resulted in significant negative excess portfolio returns. The same procedures, when repeated using market prices, yielded substantial positive excess returns. These results indicate that the market uses more than past price histories to estimate the *ex ante* instantaneous variance of stock returns. But when actual variances are used in the model, it matches actual option prices quite accurately.

When the transaction costs of trading in options were included, the implied profits varnished. Therefore even though the option market does not appear to be efficient before transaction costs are taken into account, there is no opportunity for traders to take advantage of this inefficiency.

The Galai Study

Galai (1977) used data from the CBOE for each option traded between April 26, 1973 and November 30, 1973. Option contracts on the CBOE have standardized striking prices and expiration dates. Although the options are not dividend protected, the standardization of contracts has resulted in a substantial volume of trading and lower transaction costs.

The fact that option prices are listed every day allowed *Galai* to extend the Black-Scholes procedure. Black and Scholes established an initial option position and then maintained a hedge position by buying or selling shares of stock. They could not adjust the option position because they did not

have market prices for the options. They were unable to exploit all the information available in the daily deviation of the option's actual prices from the model prices.

Galai duplicated the Black-Schloles tests and extended them by adjusting the option position every day. Undervalued options were bought and overvalued options were sold at the end of each day; in addition, the hedged position was maintained by buying or selling the appropriate number of shares in common stock. *Galai* used two tests: (1) an ex post test that assumed that traders can use the closing price on day t to determine whether the option is over or undervalued and that they could transact at the closing prices on day t and (2) a more realistic *ex ante* test that assumed that the trading rule is determined from closing prices on day t but the transaction is not executed until the closing price at day t+1. Both tests used various estimates of the variance of common stock rates of return that were based on data gathered before the trading rule was executed.

The main results of the test were:

- Using the ex post hedge returns, trading strategies (in the absence of transaction costs) that were based on the Black-Scholes model earned significant excess returns;
- Given 1 % transaction costs, the excess returns varnished;

- The results were robust to changes in various parameters such as the risk-free rate or instantaneous variance;
- The results were sensitive to dividend adjustment. Trading in options written on common stock paying high dividend yielded lower profits than trading in options written on low-dividend stocks. This result, however, simply reflects the fact that the Black-Scholes formula assumes no dividend payments;
- Deviations from the model's specification led to worse performance.

Bhattacharya (1983) used CBOE transaction data from August 1976 to June 1977. He looked at three different boundary conditions. An immediate exercise test was composed of situations where the trader could earn more from exercising immediately than from keeping his or her option alive. For a sample of 86,137 transactions there were 1,120 immediate exercise opportunities assuming zero transaction costs. However, after transaction costs, even a member of the CBOE or NYSE would have realized negative average trading profits. Similar results were obtained for tests of dividend-adjusted lower bounds using the lower bound for European call options and for pseudo-American call options.

Taken together, the two studies mentioned above seem to indicate that the Black-Scholes OPM predicts option prices very well indeed. So well in fact that excess returns can only be earned in the absence of transaction

costs. However, once transaction costs are introduced into the trading strategies, excess profits varnish. This confirms the usual result that nonmember traders cannot beat the market. Prices are efficiently determined down to the level of transaction costs.

The Bhattacharya study

If one is empirically testing the null hypothesis that observed market prices and the Black-Scholes theoritical prices exhibit no systematic differences, the null hypothesis can be rejected for any of three reasons:

1. Inputs to the Black-Scholes model have been incorrectly measured or;
2. The option market is inefficient or;
3. The mathematical structure of the Black-Scholes model is incorrect.

Bhattacharya (1980) avoids difficulties (1) and (2) by creating hypothetical hedge portfolios based on simulated B-S option values. If a neutral hedge is adjusted daily (continuously would even be better), the excess return should be zero if the B-S formula is correct. The only observed data inputs are the stock price , the stock price variance estimated directly from stock data during the life of the hedge, and the risk-free rate. Bhattacharya's results show no operationally significant mispricing by the B-S formula except for at-the-money options very close to maturity where the B-S model overvalues options.

The Macbeth/Merville and Becker Studies

Using CBOE daily closing prices between December 31, 1975 and December 31,1976, for all call options listed for six major companies (AT&T, Avon, Kodak, Exxon, IBM, and Xerox), *Macbeth* and *Merville* (1979) tested the Black-Scholes model to see whether or not it over or underpriced options. Also (1980), using the same data set, they tested the Black-Scholes model against an alternative constant elasticity of variance (CEV) model derived by Cox (1975) and Cox and Ross (1976).

In their first paper (1979), *Macbeth* and *Merville* estimate the implied standard deviation of the rate of return for the underlying common stock by employing the Black-Scholes model. Then, by assuming that the B-S model correctly prices at the money options with at least 90 days to expiration, they are able to estimate the percent deviation of observed call prices from B-S call prices. They conclude that:

- The Black-Scholes model prices are on average less (greater) than market prices for in-the-money (out-of-the money) options.
- The extent to which the Black-Scholes model underprices (overprices) an in-the-money (out-of-the-money) option increases with the extent to which the option is in-the-money (out-of-the-money) and decreases as the time to expiration decreases.

- The Black-Scholes model prices of out-of-the-money options with less than 90 days to expiration are, on the average, greater than market prices; but there does not appear to be any consistent relationship between the extent to which these options are overpriced by the B-S model and the degree to which these options are out-of-the-money or the time to expiration.

The second *Macbeth* and *Merville* paper (1980) compares the Black-Scholes model against the constant elasticity of variance (CEV) model. The primary difference between the two models is that the B-S model assumes that variance of returns on the underlying assets remain constant, whereas the constant elasticity of variance model assumes the variance changes when the stock price does. Empirical evidence on the relationship between the level of stock prices and the rate of return variance is somewhat mixed. *Blattberg* and *Gonedes* (1974) suggest that the variance may change randomly through time. *Rosenberg* (1973) finds that it follows an autoregressive scheme. And Black (1976) observes that the variance of returns varies inversely with stock prices. For the six securities that *Macbeth* and *Merville* studied the variance relative to the stock price seem to decrease as the stock price rises. Using their estimates of the constant elasticity of variance, they find that the Cox model fits the data better than the Black-Scholes model. Their empirical results were also consistent with the compound option model of *Geske* (1979).

Beckers (1980) also compares the constant elasticity of variance model with the Black-Scholes model. First, however, he uses 1,253 daily observations (September 18,1972, to September 7,1977) for 47 different stocks to test the Black-Scholes assumption that the stock variance is not a function of the stock price. The data reject this hypothesis. The variance was an inverse function of the stock price for 38 of the 47 stocks- a result consistent with the constant elasticity of variance model. This is sometimes called the volatility bias. When testing simulated Black-Scholes call prices against the constant elasticity of variance prices, *Beckers* found that the CEV model gives higher option prices than B-S for in-the money options. This is consistent with the empirical work of *Macbeth* and *Merville*, who found that the B-S model undervalues in-the-money options.

Geske and *Roll* (1984) used transaction data for all options traded at midday on August 24,1976 (a sample of 667 different options on 85 stocks). A subsample of 119 options on 28 different stocks with zero scheduled dividends during their remaining life was identified within the main sample. Using regression analysis, *Geske* and *Roll* demonstrate that the original time, in versus out-of-the-money , and volatility biases are present in the entire sample. Next, they show that in the non-dividend sample the time and "money" biases are significantly reduced but the volatility bias remains large. However, by correcting the volatility estimates

of all stocks using a "Stein shrinker" technique, the volatility bias is reduced. *Geske* and *Roll* conclude that the time and money biases may be related to improper model treatment of early exercise (the dividend problem), whereas the volatility bias problem may be more related to statistical errors in variance parameter estimates.

The Whaley Study

A study in the United States by *Whaley* (1982) examined 91 dividend paying stocks and their respective options over the period January 1975 to February 1978. He valued the options using the Black and Scholes's model, after adjusting the common stock price for the present value of dividends paid during the life of the option. The average quoted price of his sample of options was $4.1288 (standard deviation was $5.2400). Using the standard deviation implied by the price of the call option from a previous period, he calculated an average option price of $4.1071 (standard deviation was $5.1036 using the Black and Scholes model). The average of the model's prices was within approximately $.03 of the average of actual option prices.

Whaley showed also that the profits from buying the individual apparently undervalued options and selling the individual apparently overvalued options were insufficient to cover the market maker's spread, let alone other

transaction costs, such as commissions and transfer fees. This evidence suggests that the results obtained from Black and Scholes's model provide a good approximation to actual prices, and that it is not possible to make money by trading on the basis of any mispricing implied by the model. *(Robert E Whaley-1982)*

Rubinstein-Nonparametric Test of Alternative Option Pricing Models

The extensions of the Black and Scholes option pricing model discussed above, have been compared by *Rubinstein* (1985). He used the MDR (market data report) data base of the Chicago Board of Options Exchange, which has been consolidated into the Berkeley Options Database. The data is a time-stamped record, to the nearest second, including option trade prices, quotes, and volume, coupled with the stock price at the corresponding time during the day.

Rubinstein's experimental design was to select matched pairs of options, e.g all options belonging to the same stock, observed on the same day during the same constant stock price interval, having the same exercise price, and falling within a predetermined range of out-of-the-money values (e.g S/X = .75 to .85). Pairing in this case was on the basis of different times to maturity. For example, an option might fall within the 71 to 120 day range and another on the 171 to 220 day range. There were actually 373 of these particular matched pairs (overall there were 19,094 pairs

based on differences on time to expiration and 12,239 pairs based on equal time to maturity but different exercise prices). If the Black-Scholes formula is unbiased there would be a 50/50 chance that the implied option variance for the shorter maturity option is higher than the longer maturity option. In fact, 94.1% of the shorter maturity options had higher variance. Thus in this case the Black-Scholes formula could be rejected.

Non-parametric tests of options paired either by differences in time to maturity or in exercise prices were performed for two time periods: (1) August 21,1976 to October 21,1977, and (2) October 24 1977 to August 31,1978. Two interesting conclusions were found. First, if the time to maturity is held constant, then the Black-Scholes model is biased, but the direction of the bias is different in the two time periods that were investigated. During the 1976-1977 interval in-the-money options were undervalued by the Black-Scholes formula. This confirms the work of *Macbeth* and *Merville* (1979). The direction of the bias is rev ersed during the 1977-1978 period. No one knows why the bias should reverse. The second conclusion was that although some of the alternative option pricing models(eg, the displaced diffusion model) were more compatible with the empirical results, none of them were superior in both time periods.

2.5 Summary of the empirical work

Studies that have used different versions of the option pricing model to try and find economically exploitable biases have been unsuccessful in doing so when transaction costs were deducted from trading rule profits. From this one can conclude that the option pricing models fit observed prices well in an economic sense. Also, the results are consistent with market efficiency.

On the other hand, there are statistically significant biases in the Black-Scholes model. This suggests that some alternative (perhaps composite) model can do better. Much work remains to be done in testing the OPM. *Rubinstein's* (1985) study suggests that none of the alternative models (the jump model, the mixed-diffusion-jump model, the constant elasticity of variance model, the compound option model, or the displaced diffusion model) can explain all the biases all the time. Also, it remains unclear which of the observed biases are caused by model misspecification and which are due to statistical problems in estimating the model parameters. However, as yet no single superior model has been found.

Other empirical test observations of the B-S model include the following:

- Any violation of the assumptions upon which the B-S Model is based could lead to a misvaluation of the option contract. For example, stock prices do not change continuously meaning that stocks that are less actively traded might have options that are priced differently in the market than those stocks that trade frequently.
- *Figlewski* has noted how such market imperfections such as brokerage fees, bid-ask spreads and inflexible position sizes can create arbritreageable differences between option values and prices and have thus cautioned that the B-S values are best viewed as approximations, best suited for comparing prices of different contracts.
- *Black* has noted that other conditions of the model are almost certain to be violated in practice, such as the assumptions of the risk free rate and volatility level remaining constant until the expiration date. However, empirical studies by *Galai* (1983) concluded that the model performed relatively well despite the evidence that the standard deviation of returns on shares is not constant over time.

The conclusions drawn from the various empirical tests have often been contradictory, but, in a review of the tests, *Galai* (1983) concluded that the Black and Scholes model performed relatively well despite the evidence that the standard deviation of returns on shares is not constant over time.

The option pricing model developed by Black and Scholes is a path breaking work in the area of contingent claim pricing. Of the five variables which are necessary to specify the model, all are normally directly observable except the standard deviations from the underlying stock. Due to its rigorous theoretical underpinnings and minimum reliance on subjectively determined inputs, the model has gained a great deal of popularity in both the academic and investment communities in the Western world where trading in options is a daily reality.

(Henry A Latane and Richard J Rendleman, Jr-1976)

CHAPTER 3- RESEARCH METHODOLOGY

3.1 Population and sample design:

The study was based on analysis of all the firms quoted on the Nairobi Stock Exchange between 1997 to 2000. The following stocks were however excluded due to inactivity and therefore lack of accurate monthly share prices: Theta Group, Ol Pejeta, Hutchings Bemier, Kenya Orchards and Regent Undervalued Assets. In addition for 1997, Athi River Mining Company and TPS-Serena were not tested as they became listed in that year. The same applied for Africa Lakes Corporation, in 2000.

3.2 Data description and collection:

The data required to use the Black and Scholes model are:

- Share price and dividends
- Stock volatility
- Exercise prices
- Time to expiration of option
- Riskless rate of return
- Cumulative probability function

The above were determined as follows:

3.2.1 Share price and dividends

Monthly share prices and dividends paid in the intervening periods were collected and tabulated for each of the firms listed of the Exchange for the period 1997-2000, from the Nairobi Stock Exchange.

3.2.2 Stock volatility

Recall that volatility was defined as a measure of the amount by which an asset price fluctuates in a given time with statistical/historical volatility being a measure of actual asset price changes over specific period of time and implied volatility being a measure of how much the "market place" expects asset prices to move, for an option price. For the purpose of this research, historical volatilities were used.

Historical volatility

To estimate the volatility of a stock price empirically, the stock price is usually observed at fixed intervals of time (eg every day, week, or month). Ceteris paribus, more data generally lead to more accuracy. However, volatility does change over time and data that are too old may not be relevant for predicting the future (thus the restriction of the project to the period 1997-2000). An often used rule of thumb is to set the time period over which the volatility is measured equal to the time period over which it is applied. Thus if

the volatility is to be used to value a 6 month option, 6 months historical data are used.

The stock volatility was estimated from the historical data thus:

The stock price was observed at fixed intervals of time (monthly) where:

n+1: number of observations

S_i: stock price at end of ith interval (i= 0,1, ...n-1)

r: length of time intervals in years

u_i : In (S_i /S_{i-1}), for i = 1,2, ... n

Since $S_i = S_{I-1}{}^{eu}{}_i$, u_i is the continuously compounded return (not annualized) in the ith interval of i = 1,2,.....n. An unbiased estimate, s, of the standard deviation of the u_i's is given by

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(u_i-\bar{u})^2}$$

or

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}u_i^2 - \frac{1}{n(n-1)}\left(\sum_{i=1}^{n}u_i\right)^2}$$

Where $\bar{u}$ is the mean of the u_i's

Illustration

Estimating volatility from historical data **(Source: John Hull, Options, Futures and other derivatives, 4TH Edition, Chapter 11)**

Day	Closing stock price Sh	Price relative S_i / S_{i-1}	Daily return u_i : In (S_i / S_{i-1})
0	20		
1	20.125	1.00625	0.00623
2	19.875	0.98758	-0.01250
3	20	1.00629	0.00627
4	20.5	1.02500	0.02469
5	20.25	0.98781	-0.01227
6	20.875	1.03086	0.03040
7	20.875	1.0000	0.00000
8	20.875	1.0000	0.00000
9	20.75	0.99401	-0.00601
10	20.75	1.0000	0.00000
11	21	1.01205	0.01198
12	21.125	1.00595	0.00593
13	20.875	0.98817	-0.01190
14	20.875	1.00000	0.00000
15	21.25	1.01796	0.01780
16	21.375	1.00588	0.00587
17	21.375	1.00000	0.0000
18	21.25	0.99415	-0.00587
19	21.75	1.02353	0.02326
20	22	1.01149	0.01143

Since

$\sum u_i = 0.09531$ and $\sum u_i^2 = 0.00333$

an estimate of the standard deviation of the daily return is

$\sqrt{0.00333/19 - 0.09531^2/380} = 0.0123$

Assuming that time is measured in trading days[1], and that there are 250 trading days per year. r = 1/250 and the data give an estimate for the volatility p.a of $0.0123\sqrt{250} = 0.194$. The estimated volatility is 19.5% p.a. The standard error in the estimate is $0.194/\sqrt{2*20} = 0.0031$ or 3.1% p.a

3.2.3 Exercise prices

Recall that when an investor anticipates a bullish market (share prices having an upward trend) he would invest in a call option to benefit from the upward movement while limiting losses to the option premium paid if prices decrease. On the other hand, if a bearish market is anticipated, he would invest in a put option, a strategy that would allow the investor to benefit from downward price movements while limiting losses to the premium paid if prices increase.

To determine appropriate exercise prices based on current share prices, the model explained in John Hull, Options, Futures and Other derivatives, 4th Edition, Chapter 11, and summarized below, was used:

If a stock price, S, follows geometric Brownian motions,

$$dS = \mu S\,dt + \sigma S\,dz$$

Then

$$d(\ln S) = \left(\mu - \frac{\sigma^2}{2}\right)dt + \sigma\,dz$$

The variable In S follows a generalized Wiener process. The change in In S between time 0 and T is normally distributed so that

$$\ln S_T \sim \ln S_0 + \phi\left[\left(\mu - \frac{\sigma^2}{2}\right)T,\ \sigma\sqrt{T}\right]$$

From this it follows that

$$\ln \frac{S_T}{S_0} \sim \phi\left[\left(\mu - \frac{\sigma^2}{2}\right)T,\ \sigma\sqrt{T}\right]$$

And

$$\ln S_T \sim \Phi\left[\ln S_0 + \left(\mu - \frac{\sigma^2}{2}\right)T,\ \sigma\sqrt{T}\right]$$

Where S_T is the stock price at a future time T, S_0 is the stock price at time 0, and denotes a normal distribution with mean *m* and standard deviation *s*. S_T has a lognormal distribution.

ILLUSTRATION

Consider a stock with an initial price of $40, an expected return of 16% per annum and a volatility of 20% per annum. The probability distribution of the stock price S_T, in 6 months time is given by

$\ln S_T$ ($\ln 40 + (0.16-0.22/2)* 0.5, 0.2 \sqrt{0.5}$)

$\ln S_T$ (3.759,0.141)

There is a 95% probability that a normally distributed variable has a value within 1.96 standard deviations of its mean. Hence, with 95% confidence,

$3.759-1.96*0.141 < \ln S_T < 3.759 +1.96 *0.141$

this can be written

$e^{3.759-1.91*0.41} ,< S_T < e^{3.759+1.96*0.141}$

thus, there is a 95% probability that the stock price in six months will lie between 32.55 and 56.56.

using the properties of lognormal distribution, it can be shown that the expected value of S_T $E(S_T)$ is given by $E(S_T) = S_0 e^{rT}$ while the variance of ST, var(ST) is given by $VAR(S_T) = S_0^2 e^{2rT} [e^{\sigma^2 T} - 1]$

The above model was used to estimate the exercise prices for the stocks for the period under study. Expected return was determined using P1-P0+DIV/P0 as summarized in appendix 2.

3.2.4 Time to expiration

For consistency and effective comparison, the time to expiration for options was assumed to be 6 months (January-June and July-December).

3.2.5 Riskless rates of return

The interest rate offered on government securities, treasury bills, was assumed to be the riskless rates of return. Treasury bill rates for the years 1997-2000 was collected from The Central Bank of Kenya.

3.2.6 N(d)

Represents the cumulative probability of observing a value drawn from the standard normal distribution (ie with a mean of zero and a standard

deviation of one) equal to or less than d. These were determined from the standard probability distribution tables and are already included in the Black and Scholes computation software used as explained further under data analysis.

3.3 Data analysis

To estimate the possible range of option values and the range of exercise prices that derive in the money options, the Black and Scholes model as indicated below was applied:

$$C = S * N(d1) - E * N(d2)/e^{rt}$$

Where:

C = Price of the option

S = Current price of the stock

E = Exercise price (or striking price)

t = Time remaining before expiration of the option usually expressed as a proportion of a year.

r = Continuously compounded riskless rate of interest

e = Base of the natural logarithm, or 2.71818

N (d) = The probability that a normally distributed random variable with a mean of zero and a standard deviation equal to one will have a value less than or equal to d

$$d1 = \frac{In\ (S/E) + (R + 0.5\ v^2))\ t}{v * \sqrt{t}}$$

$d2 = d1 - v*\sqrt{t}$

where v = standard deviation of the continuously compounded rate of return on the stock, in other words, stock volatility

A Black and Scholes computation software, ***derivagem*** (the particular program, ***bopscol)***, was used to compute the option values. This software can be downloaded from the website *http://www.prenhall.com/financecenter*. The program, on insertion of the stock price, exercise/strike price, risk-free rate and stock volatility, generates the call and put price and the "Greek" letters which are explained below, for European options. Each Greek letter measures a different dimension of the risk in an option position and the aim of a trader is to manage the Greeks so that all risks are acceptable. While a detailed study of the Greek letters is beyond the scope of this research project, they can be broadly defined as follows:

Delta

The delta of an option is defined as the rate of change of the option price with respect to the price of the underlying asset. It is the slope of the curve that relates the option price to the underlying asset price. Suppose that the delta of a call option on a stock is 0.6. This means that when the stock price changes by a small amount, the option price changes by 60% of that amount.

Theta

The theta of a portfolio of derivatives is the rate of change of the portfolio value with respect to the passage of time when all else remains the same. Equivalently, it is the rate of change of the portfolio value with respect to a decrease in the times to maturity of the derivatives in the portfolio.

Theta is usually negative for an option.(An exception to this could be an in-the-money European put option on a non-dividend-paying stock or an in-the-money European call option on a currency with a very high interest rate). This is because as time passes, the option tends to become less valuable. Thus theta is also sometimes referred to as the time decay of the portfolio.

Gamma

The gamma of a portfolio of derivatives on an underlying asset is the rate of change of the portfolio's delta with respect to the price of the underlying asset. If gamma is small, delta changes slowly and adjustments to keep the portfolio delta neutral need only be made relatively infrequently. However if gamma is large in absolute terms, delta is highly sensitive to the price of the underlying asset.

Vega

The vega of a portfolio of derivatives is the rate of change of the value of the portfolio with respect to the volatility of the underlying asset. If vega is high in absolute terms, the portfolio's value is very sensitive to small changes in volatility. If vega is low in absolute terms, volatility changes have relatively little impact on the value of the portfolio.

Rho

The *rho* of a portfolio of derivatives is the rate of change of the portfolio value with respect to the interest rate. It measures the sensitivity of the portfolio value to interest rates.

Having determined the exercise price ranges, the option values were simulated as follows: Assuming the determined exercise range is 17 to 94, option values were simulated for 17, 27, 37, 47, 57, etc. Suppose that option values changed from negative to positive in the range of 47 to 57, simulation was further done starting with 47+5 (ie 52) until the exact exercise price at which the option value becomes positive, is determined.

In summary, the research determined the following for the stocks quoted on the Nairobi Stock Exchange, for the period 1997 to 2000:

- The expected returns for the individual stocks;
- The stock volatility/share price movement during this period
- Mathematically determined exercise price ranges for options on these stocks
- Option values, using the Black and Scholes option pricing model, and the range for in the money European call and put options on these stocks.

A summary of the research findings are provided in chapter 4.

CHAPTER 4:RESEARCH FINDINGS AND INTERPRETATION

4.1: Expected returns

The agricultural sector registered the highest expected returns in 1998, with George Williamson Kenya registering an all-time high of 74%. This can be explained by the fact that the tea companies (which dominate the sector) registered record crop output following the El Nino rains. Significant improvement in world tea prices also resulted in exceptional earnings. The situation, however, changed drastically in 1999 when all stocks, with the exception of Kapchorua Tea Company, registered negative returns.

The highest return by the finance and investment sector was registered by Pan Africa Insurance Ltd in 1999, followed by ICDCI in 1998. The lowest return was recorded by KCB in 1999 (due to the significant bad debt provisioning that seriously dented its annual results).

Table 4.1.1: Summary of expected returns-Agricultural and Finance & Investment Sectors

SECTOR	COMPANY	1997	1998	1999	2000
Agricultural	*Brooke Bond Kenya Limited*	-26%	28%	-25%	-4%
	Eaagads Limited	61%	16%	-37%	-18%
	George Williamson Kenya	19%	74%	-33%	8%
	Kakuzi Ltd	0%	49%	-36%	-38%
	Kapchorua Tea Co Ltd	2%	46%	61%	2%
	Limuru Tea Co Ltd	40%	13%	-7%	8%
	Rea Vipingo Ltd	-3%	-22%	-20%	-37%
	Sasini Tea & Coffee Ltd	62%	16%	-35%	-19%
Finance & Investment	*Barclays Bank Ltd*	9%	16%	-10%	3%
	City Trust Ltd	8%	-17%	-15%	15%
	CFC Bank Ltd	-21%	-6%	4%	-3%
	Diamond Trust Bank Kenya	-40%	0%	20%	-45%
	Housing Finance Co (K) Ltd	-18%	16%	-28%	-46%
	ICDC Investments Co Ltd	-8%	28%	27%	1%
	Jubilee Insurance Co Ltd	-2%	3%	-18%	9%
	Kenya Commercial Bank Ltd	-7%	-12%	-49%	17%
	National Bank of Kenya Ltd	-16%	-28%	-42%	-37%
	National Industrial Credit	4%	-24%	-5%	-28%
	Regent Undervalued Assets	0%	0%	0%	0%
	Pan Africa Insurance Ltd	-14%	-34%	66%	-58%
	Standard Chartered Bank	-8%	12%	11%	44%

The expected returns of the commercial and services sector and the industrial and allied sector, for the period of study, significantly deteriorated. This is perhaps expected as the companies in this sector were hardest hit by the factors contributing to the down turn in Kenya's economic performance, alluded to earlier. These include poor state of infrastructure, inadequate power supply, declined level of tourism and high levels of interest rates.

Table 4.1.2: **Summary of expected returns-Commercial and Industrial & Allied Sectors**

SECTOR	COMPANY	1997	1998	1999	2000
Commercial &	*A Baumann & Co Ltd*	-49%	13%	-4%	-30%
	CMC Holdings Ltd	15%	-14%	-7%	-49%
	Car & General (K) Ltd	-20%	-25%	-25%	11%
	Express Kenya Ltd	-17%	-45%	-34%	-5%
	Kenya Airways Ltd	0%	22%	-4%	31%
	Lonhro Motors (EA) Ltd	-70%	-44%	-40%	Delisted
	Marshalls (EA) Ltd	-5%	-1%	-6%	-21%
	Nation Media Group Ltd	19%	6%	-26%	-30%
	Pearl Drycleaners Ltd	10%	-5%	-70%	-32%
	Standard Newspapers Ltd	47%	-30%	-53%	44%
	Tourism Promotion Services	Not listed	4%	11%	-50%
	Uchumi Supermarkets Ltd	7%	17%	0%	29%
Industrial and Allied	*Athi River Mining Ltd*	Not listed	29%	-5%	-29%
	Bamburi Cement Ltd	-7%	-1%	-23%	33%
	British American Tobacco	-33%	19%	1%	17%
	B O C Gases Ltd	-1%	7%	-20%	-21%
	Carbacid Investments Ltd	-17%	53%	6%	-24%
	Crown Berger Ltd	-12%	-6%	48%	-10%
	Dunlop Kenya Ltd	-64%	3%	-49%	-31%
	EA Cables Ltd	-15%	-31%	-10%	6%
	EA Packaging Ltd	-30%	-68%	-55%	-40%
	EA Portland Cement Ltd	-16%	3%	-36%	4%
	Firestone East Africa Ltd	-14%	11%	7%	-20%
	East Africa Breweries Ltd	5%	56%	12%	24%
	Kenya National Mills Ltd	16%	15%	-44%	-26%
	Kenya Oil Co Ltd	-27%	19%	23%	19%
	Kenya Power & Lighting Ltd	109%	3%	-20%	-54%
	Total Kenya Ltd	-41%	-10%	4%	21%
	Unga Group Ltd	8%	141%	-45%	-39%

4.2 Stock Volatilities

Volatility is a measure of the amount by which an asset price fluctuates in a given time. Mathematically, volatility is the annualized standard deviation of the asset daily price changes. For the purposes of this research, statistical volatility, a measure of actual asset price changes over specific period of time (annually) was determined using the model described earlier under chapter 3.

Options are valuable precisely because of the risk of the underlying common stock. An investor would not invest in an option to purchase a completely riskless common stock with an exercise price equal to the current market price. Thus the more volatile the underlying stock, the more valuable the option.

One of the objectives of this research was to find out which stocks quoted on the Nairobi Stock Exchange have share prices volatile enough to make it worthwhile for investors to hedge against such movements through options contracts. The tables below summarizes, by sector, the volatilities of the Nairobi Stock Exchange stocks for the period 1997-2000:

4.2.1: Agricultural sector

The agricultural sector exhibited fairly wide fluctuations in stock volatility with the highest recorded amount being 68% (George Williamson Kenya

Ltd) in 1997 and the lowest, 0% (Kapchorua Tea Company) in the same year and in the year 2000, when Limuru Tea Company also had volatility of 0%. In 2000, the share prices of these two stocks remained virtually constant. The highest standard deviation and mean (as summarized in table 4.2) were recorded in 1997 followed by 1999, with 1998 and 2000 figures being fairly close.

Table 4.2.1a-Summary of stock volatilities-Agricultural Sector

COMPANY	1997	1998	1999	2000
Brooke Bond Kenya Limited	14%	23%	39%	28%
Eaagads Limited	51%	30%	60%	21%
George Williamson Kenya Ltd	68%	23%	22%	43%
Kakuzi Ltd	51%	26%	27%	29%
Kapchorua Tea Co Ltd	0%	22%	24%	0%
Limuru Tea Co Ltd	31%	2%	16%	0%
Rea Vipingo Ltd	27%	16%	20%	22%
Sasini Tea & Coffee Ltd	38%	44%	27%	30%

The widest range in volatility of the stocks in this sector was witnessed in 1998, followed by 1999 then 2000 and 1997. Stock volatilties for this sector was highest in 1997 which registered the highest mean, median and mode. Other statistical data are as summarized in table 4.2.1b below:

TABLE 4.2.1b-Summary of decriptive statistics- Agricultural Sector

AGRICULTURAL SECTOR	*1997*	*1998*	*1999*	*2000*
Mean	0.35	0.2325	0.2937	0.2162
Standard Error	0.0774	0.0420	0.0498	0.0527
Median	0.345	0.23	0.255	0.25
Mode	0.51	0.23	0.27	0
Standard Deviation	0.2189	0.1189	0.1410	0.1492
Sample Variance	0.0479	0.0141	0.0199	0.0222
Kurtosis	-0.4004	1.8637	3.1804	-0.3614
Skewness	-0.1552	-0.0812	1.7537	-0.5285
Range	0.68	0.42	0.44	0.43
Minimum	0	0.02	0.16	0
Maximum	0.68	0.44	0.6	0.43
Sum	2.8	1.86	2.35	1.73
Count	8	8	8	8
Confidence Level(95.0%)	0.1830	0.0994	0.1179	0.1247

4.2.2: Finance and investment sector

The highest volatility in this sector was registered by City Trust (77%) in 1997 (an otherwise fairly stable stock) followed by ICDC Investment Company (76%) in the same year. Regent Undervalued Assets Africa Fund which is included in this sector but was never traded registered 0% volatility for all the 4 years. The highest mean volatility for the sector was registered in 2000, a year characterized with turbulence and uncertainty for the banking sector as a motion in Parliament sought to regulate the level of interest rates that banks can charge. Other statistical data are as summarized in table 4.2.2a below.

Table 4.2.2a-Summary of stock volatilities-Finance & Investment Sector

COMPANY	1997	1998	1999	2000
Barclays Bank Ltd	17%	40%	20%	36%
City Trust Ltd	14%	77%	14%	19%
CFC Bank Ltd	38%	24%	43%	40%
Diamond Trust Bank Kenya Ltd	25%	20%	25%	29%
Housing Finance Co (K) Ltd	14%	32%	28%	111%
ICDC Investments Co Ltd	76%	37%	8%	27%
Jubilee Insurance Co Ltd	28%	19%	23%	24%
Kenya Commercial Bank Ltd	34%	23%	23%	34%
National Bank of Kenya Ltd	31%	60%	29%	51%
National Industrial Credit Ltd	24%	54%	14%	39%
Regent Undervalued Assets	0%	0%	0%	0%
Pan Africa Insurance Ltd	34%	18%	109%	-39%
Standard Chartered Bank Ltd	13%	34%	15%	51%

TABLE 4.2.2b-Summary of descriptive statistics-Finance & Investment Sector

	1997	*1998*	*1999*	*2000*
Mean	0.2677	0.3369	0.27	0.3846
Standard Error	0.0507	0.0568	0.0744	0.0711
Median	0.25	0.32	0.23	0.36
Mode	0.14	#N/A	0.14	0.51
Standard Deviation	0.1828	0.2047	0.2683	0.2565
Sample Variance	0.0334	0.0419	0.0720	0.0658
Kurtosis	4.0987	0.4897	8.3071	5.6768
Skewness	1.5247	0.6675	2.6617	1.8441
Range	0.76	0.77	1.09	1.11
Minimum	0	0	0	0
Maximum	0.76	0.77	1.09	1.11
Sum	3.48	4.38	3.51	5
Count	13	13	13	13
Confidence Level(95.0%)	0.1105	0.1237	0.1622	0.1549

4.2.3: Commercial and services sector

The stocks with the highest volatilities in this sector were Lonhro Motors in 1997 (120%) and Pearl DryCleaners in 1999 (120%), followed closely by Marshalls (EA) Ltd in 1997 (118%), while the lowest volatilities were registered by A Baumann & Co Ltd (12%) in 1999 followed by Kenya Airways Ltd (13%) in 1997 and Express Kenya Limited in 2000 (13%). It therefore follows that the highest range was in 1999 followed by 1997.

Table 4.2.3a-Summary of stock volatilities-Commercial and Services Sector

COMPANY	1997	1998	1999	2000
Africa Lakes Corporation Plc				
A Baumann & Co Ltd	57%	11%	12%	22%
CMC Holdings Ltd	38%	29%	16%	27%
Car & General (K) Ltd	23%	43%	105%	94%
Express Kenya Ltd	19%	36%	49%	13%
Kenya Airways Ltd	13%	25%	39%	25%
Lonhro Motors (EA) Ltd	120%	25%	38%	
Marshalls (EA) Ltd	118%	17%	19%	20%
Nation Media Group Ltd	56%	81%	22%	17%
Pearl Drycleaners Ltd	18%	4%	120%	26%
Standard Newspapers Ltd	70%	92%	112%	110%
Tourism Promotion Services		31%	16%	97%
Uchumi Supermarkets Ltd	45%	31%	27%	17%

This sector witnessed the initial public offering of shares in Tourism Promotion Services (Serena) in 1997 and Africa Lakes Corporation in mid 2000 and the suspension of trading in shares of Lonhro East Africa in 2000 following the placement of the company under receivership. Other statistical data are as summarized in table 4.2.3b below:

TABLE 4.2.3.b-summary of descriptive statistics-Commercial & Services Sector

	1997	*1998*	*1999*	*2000*
Mean	0.5245	0.3542	0.4792	0.4254
Standard Error	0.1136	0.0757	0.1168	0.1132
Median	0.45	0.3	0.325	0.25
Mode	#N/A	0.25	0.16	0.17
Standard Deviation	0.3767	0.2621	0.4047	0.3754
Sample Variance	0.1419	0.0687	0.1637	0.1409
Kurtosis	-0.0492	1.3227	-0.5323	-0.5875
Skewness	0.9748	1.3438	1.0864	1.1818
Range	1.07	0.88	1.08	0.97
Minimum	0.13	0.04	0.12	0.13
Maximum	1.2	0.92	1.2	1.1
Sum	5.77	4.25	5.75	4.68
Count	11	12	12	11
Confidence Level(95.0%)	0.2531	0.1665	0.2571	0.2522

4.2.4: Industrial and allied sector

The highest volatility registered in this sector during the four years under review was by Dunlop Kenya Ltd (161%) in 1997, followed by EA Portland Cement (107%) in 1999. The highest volatilities by the sector as a whole was in 1997, with a mean of 49.75% and the lowest in 1998, with a mean of 41.29%. A summary of other statistical data is as indicated in table 4.2.4b below:

Table 4.2.4a-Summary of stock volatilities-Industrial & Allied Sector

COMPANY	1997	1998	1999	2000
Athi River Mining Ltd	Share not listed	48%	42%	42%
Bamburi Cement Ltd	45%	46%	31%	14%
British American Tobacco	30%	9%	27%	52%
B O C Gases Ltd	110%	46%	31%	30%
Carbacid Investments Ltd	19%	34%	29%	40%
Crown Berger Ltd	37%	44%	69%	34%
Dunlop Kenya Ltd	161%	72%	57%	22%
EA Cables Ltd	28%	29%	16%	62%
EA Packaging Ltd	49%	43%	51%	86%
EA Portland Cement Ltd	58%	25%	107%	24%
Firestone East Africa Ltd	35%	29%	24%	30%
East Africa Breweries Ltd	25%	36%	20%	17%
Kenya National Mills Ltd	34%	58%	77%	80%
Kenya Oil Co Ltd	22%	22%	42%	23%
Kenya Power & Lighting Ltd	47%	27%	25%	46%
Total Kenya Ltd	57%	39%	25%	43%
Unga Group Ltd	39%	95%	103%	73%

Athi River Mining Company was listed on the exchange during 1997 and has since become (2001) an associated company of another stock in the same sector (Bamburi Cement). The volatility (share price movement) of Athi River Mining Company has been fairly stable.

TABLE 4.2.4b-Summary of descriptive statistics-Industrial & Allied Sector

	1997	*1998*	*1999*	*2000*
Mean	0.4975	0.4129	0.4565	0.4223
Standard Error	0.0915	0.0488	0.0683	0.0532
Median	0.38	0.39	0.31	0.4
Mode	#N/A	0.46	0.42	0.3
Standard Deviation	0.3659	0.2012	0.2815	0.2195
Sample Variance	0.1339	0.0405	0.0792	0.0482
Kurtosis	5.6614	2.2719	0.4549	-0.4127
Skewness	2.3348	1.1879	1.1960	0.7452
Range	1.42	0.86	0.91	0.72
Minimum	0.19	0.09	0.16	0.14
Maximum	1.61	0.95	1.07	0.86
Sum	7.96	7.02	7.76	7.18
Count	16	17	17	17
Confidence Level(95.0%)	0.1950	0.1035	0.1447	0.1128

4.3: Exercise price ranges

Tables 4.3.1 through to table 4.3.8 provide a summary of the *mathematically* determined exercise price ranges for each stock, during the period under study and the range for in-the-money 6-month European options, (January to June and July to December) which were determined using the Black and Scholes opton pricing model. The detailed option values are as indicated in appendix 6.

The results indicate that, for the period 1997 to 2000, the exchange has been largely bearish (market prices on a decline) making the most appropriate hedging strategy using options to be the investment in put options. For example, during the period July to December 1997 there were nil in-the money call options for the Finance and Investment, Commercial and Services and Industrial and Allied sectors (See table 4.3.2). The same

applied for the period July to December 1999 (See table 4.3.6). A review of the other periods indicates that, generally, in-the-money call options were more of the exception than the rule for the four years reviewed.

The computed exercise price ranges consistently fell within the actual share price movements for the six month options. For example, the actual share prices for Brooke Bond between January and June 1997 were Sh 124 and Sh 149 while the computed exercise price ranges were Sh 107 to Sh 159. Similarly, the actual share prices for Kenya Airways in July and December 1999 were Sh 7.8 and Sh 8 while the computed exercise price ranges were Sh 4 to Sh 13. Whichever stock selected, the results are consistent with those illustrated above.

An almost linear relationship between the level of volatility and the range of exercise prices was observed, that is, the higher the volatility, the wider the exercise price range and vice versa. For example George Williamson Kenya Ltd had the highest volatility in the agricultural sector in 1997 and an exercise price range of Sh 28 to Sh 185. Kapchorua Tea Company which had the lowest volatility of 0% in the same year had the exercise price range of Sh 70 to Sh 71. Similarly the stock with the highest volatility in the commercial and services sector was Lonhro Motors in 1997 with a volatility of 120% and an exercise price range of Sh 12 to Sh 332, whereas the stock with the lowest volatility in the same sector was Express Kenya in 2000 with a volatility of 13% and an exercise price range of Sh 15 to Sh 22.

TABLE 4.3.1

Exercise Price Ranges- January- June 1997

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	107 to 159	Nil	125 to 159
	Eaagads Limited	17 to 70	Nil	30 to 70
	George Williamson Kenya Ltd	28 to 185	Nil	87 to 185
	Kakuzi Ltd	45 to 185	Nil	125 to 185
	Kapchorua Tea Co Ltd	70 to 71	Nil	70 to 71
	Limuru Tea Co Ltd	677 to 1595	Nil	1005 to 1595
	Rea Vipingo Ltd	7 to 15	Nil	10 to 15
	Sasini Tea & Coffee Ltd	47 to 133	47 to 82	Nil
Finance & Investment	*Barclays Bank Ltd*	95 to 151	Nil	111 to 151
	City Trust Ltd	28 to 42	Nil	38 to 42
	CFC Bank Ltd	12 to 33	12 to 21	Nil
	Diamond Trust Bank Kenya	21 to 42	Nil	31 to 42
	Housing Finance Co (K) Ltd	18 to 26	Nil	24 to 26
	ICDC Investments Co Ltd	12 to 95	12 to 39	Nil
	Jubilee Insurance Co Ltd	25 to 55	25 to 27	47 to 55
	Kenya Commercial Bank Ltd	53 to 135	53 to 109	Nil
	National Bank of Kenya Ltd	9 to 22	Nil	16 to 22
	National Industrial Credit Ltd	36 to 70	36 to 57	Nil
	Pan Africa Insurance Ltd	29 to 74	29 to 58	Nil
	Standard Chartered Bank Ltd	43 to 62	Nil	48 to 62
Commercial & Services	*A Baumann & Co Ltd*	11 to 53	Nil	28 to 53
	CMC Holdings Ltd	43 to 123	43 to 72	123
	Car & General (K) Ltd	13 to 24	Nil	18 to 24
	Express Kenya Ltd	53 to 89	Nil	72 to 89
	Kenya Airways Ltd	7 to 10	Nil	9 to 10
	Lonhro Motors (EA) Ltd	12 to 332	Nil	104 to 332
	Marshalls (EA) Ltd	6 to 167	6 to 64	Nil
	Nation Media Group Ltd	53 to 249	Nil	144 to 249
	Pearl Drycleaners Ltd	8 to 13	Nil	11 to 13
	Standard Newspapers Ltd	36 to 254	Nil	150 to 254
	Uchumi Supermarkets Ltd	21 to 73	Nil	46 to 73
Industrial and Allied	*Bamburi Cement Ltd*	20 to 69	Nil	41 to 69
	British American Tobacco Ltd	45 to 104	Nil	62 to 104
	B O C Gases Ltd	11 to 236	11 to 33	Nil
	Carbacid Investments Ltd	57 to 97	Nil	87 to 97
	Crown Berger Ltd	7 to 19	Nil	11 to 19
	Dunlop Kenya Ltd	11 to 973		
	EA Cables Ltd	23 to 49	Nil	34 to 49
	EA Packaging Ltd	29 to 112	Nil	76 to 112
	EA Portland Cement Ltd	9 to 46	9 to 43	Nil
	Firestone East Africa Ltd	17 to 44	Nil	30 to 44
	East Africa Breweries Ltd	37 to 75	37 to 53	Nil
	Kenya National Mills Ltd	23 to 59	23 to 45	Nil
	Kenya Oil Co Ltd	45 to 83	Nil	72 to 83
	Kenya Power & Lighting Ltd	76 to 283	76 to 170	Nil
	Total Kenya Ltd	32 to 155	Nil	95 to 155
	Unga Group Ltd	70 to 206	70 10 138	Nil

TABLE 4.3.2

Exercise Price Ranges- July-December 1997

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	89 to 132	Nil	124 to 132
	Eaagads Limited	16 to 67	16 to 40	Nil
	George Williamson Kenya Ltd	27 to 176	27 to 68	163 to 176
	Kakuzi Ltd	47 to 193	Nil	108 to 193
	Kapchorua Tea Co Ltd	70 to 71	Nil	70 to 71
	Limuru Tea Co Ltd	521 to 1227	Nil	751-1227
	Rea Vipingo Ltd	6 to 13	Nil	10 to 13
	Sasini Tea & Coffee Ltd	66 to 188	66 to 71	117 to 188
Finance & Investment	*Barclays Bank Ltd*	90 to 144	Nil	119 to 144
	City Trust Ltd	30 to 45	Nil	35 to 45
	CFC Bank Ltd	13 to 38	Nil	19 to 38
	Diamond Trust Bank Kenya Ltd	17 to 34	Nil	23 to 34
	Housing Finance Co (K) Ltd	17 to 26	Nil	20 to 25
	ICDC Investments Co Ltd	14 to 119	Nil	38 to 119
	Jubilee Insurance Co Ltd	27 to 59	Nil	36 to 59
	Kenya Commercial Bank Ltd	68 to 172	Nil	78 to 172
	National Bank of Kenya Ltd	9 to 21	Nil	14 to 21
	National Industrial Credit Ltd	43 to 84	Nil	51 to 84
	Pan Africa Insurance Ltd	35 to 92	Nil	43 to 92
	Standard Chartered Bank Ltd	38 to 54	Nil	47 to 54
Commercial & Services	*A Baumann & Co Ltd*	8 to 41	Nil	17 to 41
	CMC Holdings Ltd	51 to 145	Nil	86 to 145
	Car & General (K) Ltd	11 to 21	Nil	17 to 21
	Express Kenya Ltd	50 to 84	Nil	60 to 84
	Kenya Airways Ltd	7 to 10	Nil	9 to 10
	Lonhro Motors (EA) Ltd	8 to 214	Nil	44 to 214
	Marshalls (EA) Ltd	10 to 271	Nil	48 to 271
	Nation Media Group Ltd	55 to 255	Nil	189 to 255
	Pearl Drycleaners Ltd	8 to 14	Nil	12 to 14
	Standard Newspapers Ltd	100 to 701	Nil	264 to 701
	Uchumi Supermarkets Ltd	21 to 73	Nil	44 to 73
Industrial and Allied	*Bamburi Cement Ltd*	18 to 64	Nil	40 to 64
	British American Tobacco Ltd	33 to 77	Nil	51 to 77
	B O C Gases Ltd	12 to 256	Nil	96 to 256
	Carbacid Investments Ltd	58 to 100	Nil	67 to 100
	Crown Berger Ltd	6 to 16	Nil	11 to 16
	Dunlop Kenya Ltd	11 to 955	Nil	122 to 955
	EA Cables Ltd	20 to 44	Nil	30 to 44
	EA Packaging Ltd	27 to 107	Nil	51 to 107
	EA Portland Cement Ltd	17 to 84	Nil	21 to 84
	Firestone East Africa Ltd	15 to 41	Nil	25 to 41
	East Africa Breweries Ltd	42 to 86	Nil	50 to 86
	Kenya National Mills Ltd	31 to 79	Nil	38 to 79
	Kenya Oil Co Ltd	45 to 82	Nil	49 to 82
	Kenya Power & Lighting Ltd	144 to 538	Nil	218 to 538
	Total Kenya Ltd	29 to 139	Nil	54 to 139
	Unga Group Ltd	88 to 257	Nil	123 to 257

TABLE 4.3.3

Exercise Price Ranges- January-June 1998

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	91 to172	91 to 125	Nil
	Eaagads Limited	29 to 66	Nil	38 to 66
	George Williamson Kenya Ltd	89 to 169	89 to 140	Nil
	Kakuzi Ltd	83 to 174	83 to 141	Nil
	Kapchorua Tea Co Ltd	64 to 119	Nil	82 to 119
	Limuru Tea Co Ltd	780 to 820	Nil	780-820
	Rea Vipingo Ltd	6 to 9	Nil	7 to 9
	Sasini Tea & Coffee Ltd	34 to 118	34 to 66	Nil
Finance & Investment	*Barclays Bank Ltd*	69 to 209	Nil	105 to 209
	City Trust Ltd	9 to 78	Nil	40 to 78
	CFC Bank Ltd	12 to 23	Nil	18 to 23
	Diamond Trust Bank Kenya	17 to 29	Nil	23 to 29
	Housing Finance Co (K) Ltd	10 to 25	Nil	18 to 25
	ICDC Investments Co Ltd	23 to 65	23 to 30	49 to 65
	Jubilee Insurance Co Ltd	24 to 41	Nil	31 to 41
	Kenya Commercial Bank Ltd	53 to 102	Nil	71 to 102
	National Bank of Kenya Ltd	4 to 23	Nil	16 to 23
	National Industrial Credit Ltd	15 to 71	Nil	36 to 71
	Pan Africa Insurance Ltd	18 to 30	Nil	21 to 30
	Standard Chartered Bank Ltd	31 to 78	Nil	44 to 78
Commercial & Services	*A Baumann & Co Ltd*	14 to 19	Nil	16 to 19
	CMC Holdings Ltd	24 to 53	Nil	36 to 53
	Car & General (K) Ltd	7 to 24	Nil	12 to 24
	Express Kenya Ltd	28 to 76	Nil	28 to 76
	Kenya Airways Ltd	6 to 11	Nil	8 to 11
	Lonhro Motors (EA) Ltd	22 to 44	Nil	27 to 44
	Marshalls (EA) Ltd	20 to 33	Nil	30 to 33
	Nation Media Group Ltd	37 to 348	Nil	138 to 348
	Pearl Drycleaners Ltd	9 to 11	Nil	11
	Standard Newspapers Ltd	6 to 80	Nil	42 to 80
	Tourism Promotion Services	9 to 21	Nil	14 to 21
	Uchumi Supermarkets Ltd	28 to 66	28 to 37	55 to 66
Industrial and Allied	*Athi River Mining Ltd*	4 to 15	Nil	11 to 15
	Bamburi Cement Ltd	18 to 66	Nil	39 to 66
	British American Tobacco Ltd	63 to 82	Nil	68 to 82
	B O C Gases Ltd	19 to 69	Nil	39 to 69
	Carbacid Investments Ltd	40 to 100	Nil	47 to 100
	Crown Berger Ltd	5 to 17	Nil	11 to 17
	Dunlop Kenya Ltd	6 to 48	6 to 28	Nil
	EA Cables Ltd	16 to 36	Nil	23 to 36
	EA Packaging Ltd	18 to 60	Nil	21 to 60
	EA Portland Cement Ltd	14 to 28	14 to 17	25 to 28
	Firestone East Africa Ltd	11 to 25	Nil	20 to 25
	East Africa Breweries Ltd	37 to 102	37 to 45	71 to 102
	Kenya National Mills Ltd	6 to 33	6 to 23	Nil
	Kenya Oil Co Ltd	39 to 73	39 to 50	66 to 73
	Kenya Power & Lighting Ltd	83 to 176	Nil	142 to 176
	Total Kenya Ltd	28 to 83	Nil	43 to 83
	Unga Group Ltd	9 to 120	9 to 120	Nil

TABLE 4.3.4

Exercise Price Ranges- July- December 1998

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	109 to 206	Nil	149 to 206
	Eaagads Limited	26 to 59	Nil	40 to 59
	George Williamson Kenya Ltd	146 to 277	Nil	147 to 277
	Kakuzi Ltd	123 to 256	Nil	145 to 256
	Kapchorua Tea Co Ltd	69 to 128	69 to 92	Nil
	Limuru Tea Co Ltd	785 to 826	Nil	785 to 826
	Rea Vipingo Ltd	4 to 7	Nil	7
	Sasini Tea & Coffee Ltd	42 to 143	Nil	76 to 143
Finance & Investment	*Barclays Bank Ltd*	63 to 179	61 to 109	Nil
	City Trust Ltd	9 to 72	Nil	31 to 72
	CFC Bank Ltd	11 to 22	Nil	16 to 22
	Diamond Trust Bank Kenya	16 to 28	Nil	22 to 28
	Housing Finance Co (K) Ltd	10 to 26	Nil	18 to 26
	ICDC Investments Co Ltd	26 to 72	Nil	49 to 72
	Jubilee Insurance Co Ltd	23 to 40	Nil	31 to 40
	Kenya Commercial Bank Ltd	47 to 90	Nil	62 to 90
	National Bank of Kenya Ltd	4 to 23	Nil	9 to 23
	National Industrial Credit Ltd	13 to 58	Nil	32 to 58
	Pan Africa Insurance Ltd	13 to 21	Nil	17 to 21
	Standard Chartered Bank Ltd	27 to 69	27 to 47	Nil
Commercial & Services	*A Baumann & Co Ltd*	14 to 19	14 to 16	Nil
	CMC Holdings Ltd	21 to 47	Nil	34 to 47
	Car & General (K) Ltd	5 to 17	5 to 7	15 to 17
	Express Kenya Ltd	14 to 38	Nil	31 to 38
	Kenya Airways Ltd	5 to 11	5 to 7	10 to 11
	Lonhro Motors (EA) Ltd	14 to 28	Nil	23 to 28
	Marshalls (EA) Ltd	22 to 35	Nil	26 to 35
	Nation Media Group Ltd	32 to 302	32 to 98	251 to 302
	Pearl Drycleaners Ltd	9 to 11	Nil	11
	Standard Newspapers Ltd	5 to 75	Nil	25 to 75
	Tourism Promotion Services	8 to 20	Nil	15 to 20
	Uchumi Supermarkets Ltd	31 to 74	Nil	47 to 74
Industrial and Allied	*Athi River Mining Ltd*	4 to 14	Nil	7 to 14
	Bamburi Cement Ltd	17 to 63	Nil	42 to 63
	British American Tobacco Ltd	65 to 84	Nil	72 to 84
	B O C Gases Ltd	18 to 65	Nil	42 to 65
	Carbacid Investments Ltd	36 to 90	36 to 73	Nil
	Crown Berger Ltd	5 to 16	Nil	9 to 16
	Dunlop Kenya Ltd	10 to 74	Nil	20 to 74
	EA Cables Ltd	12 to 28	Nil	21 to 28
	EA Packaging Ltd	7 to 25	Nil	16 to 25
	EA Portland Cement Ltd	15 to 31	Nil	18 to 31
	Firestone East Africa Ltd	12 to 26	Nil	17 to 26
	East Africa Breweries Ltd	42 to 116	42 to 64	Nil
	Kenya National Mills Ltd	11 to 54	Nil	17 to 54
	Kenya Oil Co Ltd	39 to 73	Nil	57 to 73
	Kenya Power & Lighting Ltd	89 to 188	Nil	123 to 188
	Total Kenya Ltd	22 to 65	Nil	54 to 65
	Unga Group Ltd	26 to 354	Nil	59 to 354

TABLE 4.3.5

Exercise Price Ranges-January-June 1999

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	70 to 206	70 to 87	184 to 206
	Eaagads Limited	14 to 76	Nil	55 to 76
	George Williamson Kenya Ltd	87 to 161	Nil	153 to 161
	Kakuzi Ltd	80 to 167	Nil	123 to 176
	Kapchorua Tea Co Ltd	91 to 176	91 to 149	Nil
	Limuru Tea Co Ltd	588 to 908	Nil	651 to 908
	Rea Vipingo Ltd	4 to 7	Nil	7
	Sasini Tea & Coffee Ltd	40 to 83	Nil	55 to 83
Finance & Investment	*Barclays Bank Ltd*	90 to 157	Nil	111 to 158
	City Trust Ltd	20 to 29	Nil	23 to 29
	CFC Bank Ltd	8 to 28	Nil	18 to 27
	Diamond Trust Bank Kenya	17 to 34	17 to 20	32 to 34
	Housing Finance Co (K) Ltd	9 to 20	Nil	14 to 20
	ICDC Investments Co Ltd	43 to 54	43 to 48	Nil
	Jubilee Insurance Co Ltd	20 to 37	Nil	30 to 37
	Kenya Commercial Bank Ltd	34 to 65	Nil	44 to 65
	National Bank of Kenya Ltd	4 to 10	Nil	7 to 10
	National Industrial Credit Ltd	24 to 35	Nil	29 to 35
	Pan Africa Insurance Ltd	4 to 78	4 to 19	
	Standard Chartered Bank Ltd	44 to 66	Nil	50 to 67
Commercial & Services	*A Baumann & Co Ltd*	14 to 19	Nil	18 to 19
	CMC Holdings Ltd	25 to 39	Nil	29 to 39
	Car & General (K) Ltd	2 to 34	Nil	15 to 34
	Express Kenya Ltd	11 to 45	Nil	29 to 45
	Kenya Airways Ltd	4 to 13	Nil	10 to 13
	Lonhro Motors (EA) Ltd	10 to 29	Nil	18 to 29
	Marshalls (EA) Ltd	18 to 31	Nil	23 to 31
	Nation Media Group Ltd	88 to 162	Nil	134 to 162
	Pearl Drycleaners Ltd	1 to 26	Nil	22 to 26
	Standard Newspapers Ltd	2 to 56	Nil	18 to 56
	Tourism Promotion Services	12 to 19	12 to 15	Nil
	Uchumi Supermarkets Ltd	30 to 63	30 to 42	Nil
Industrial and Allied	*Athi River Mining Ltd*	3 to 10	Nil	7 to 10
	Bamburi Cement Ltd	20 to 48	Nil	27 to 48
	British American Tobacco Ltd	48 to 102	Nil	78 to 102
	B O C Gases Ltd	21 to 49	Nil	27 to 49
	Carbacid Investments Ltd	52 to 115	51 to 92	Nil
	Crown Berger Ltd	3 to 24	3 to 4	14 to 24
	Dunlop Kenya Ltd	7 to 32	Nil	16 to 32
	EA Cables Ltd	7 to 43	Nil	28 to 43
	EA Packaging Ltd	5 to 22	Nil	16 to 22
	EA Portland Cement Ltd	2 to 48	Nil	22 to 48
	Firestone East Africa Ltd	12 to 23	Nil	19 to 23
	East Africa Breweries Ltd	55 to 95	55 to 72	Nil
	Kenya National Mills Ltd	4 to 34	Nil	18 to 34
	Kenya Oil Co Ltd	33 to 106	33 to 73	Nil
	Kenya Power & Lighting Ltd	79 to 158	Nil	114 to 158
	Total Kenya Ltd	35 to 70	Nil	49 to 70
	Unga Group Ltd	7 to 120	Nil	38 to 120

TABLE 4.3.6

Exercise Price Ranges -July-December 1999

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	73 to 214	Nil	106 to 214
	Eaagads Limited	14 to 74	Nil	27 to 74
	George Williamson Kenya Ltd	88 to 163	Nil	93 to 163
	Kakuzi Ltd	68 to 143	Nil	88 to 143
	Kapchorua Tea Co Ltd	145 to 278	Nil	160 to 278
	Limuru Tea Co Ltd	502 to 775	Nil	668 to 775
	Rea Vipingo Ltd	4 to 7	Nil	5 to 7
	Sasini Tea & Coffee Ltd	31 to 65	Nil	46 to 64
Finance & Investment	*Barclays Bank Ltd*	78 to 136	Nil	105 to 136
	City Trust Ltd	17 to 25	Nil	23 to 25
	CFC Bank Ltd	8 to 27	Nil	17 to 27
	Diamond Trust Bank Kenya	18 to 37	17 to 22	Nil
	Housing Finance Co (K) Ltd	7 to 16	Nil	11 to 16
	ICDC Investments Co Ltd	49 to 62	Nil	53 to 62
	Jubilee Insurance Co Ltd	19 to 35	Nil	24 to 34
	Kenya Commercial Bank Ltd	25 to 47	Nil	32 to 47
	National Bank of Kenya Ltd	3 to 7	Nil	6 to 7
	National Industrial Credit Ltd	23 to 34	Nil	28 to 34
	Pan Africa Insurance Ltd	5 to 112	Nil	68 to 112
	Standard Chartered Bank Ltd	42 to 63	45 to 54	Nil
Commercial & Services	*A Baumann & Co Ltd*	14 to 19	Nil	15 to 19
	CMC Holdings Ltd	21 to 33	22 to 26	Nil
	Car & General (K) Ltd	1 to 29	Nil	15 to 29
	Express Kenya Ltd	10 to 40	Nil	20 to 40
	Kenya Airways Ltd	4 to 13	Nil	9 to 13
	Lonhro Motors (EA) Ltd	8 to 23	Nil	14 to 23
	Marshalls (EA) Ltd	16 to 27	16 to 20	Nil
	Nation Media Group Ltd	83 to 153	Nil	101 to 153
	Pearl Drycleaners Ltd	1 to 26	Nil	4 to 26
	Standard Newspapers Ltd	2 to 37	Nil	14 to 37
	Tourism Promotion Services	10 to 15	Nil	Nil
	Uchumi Supermarkets Ltd	32 to 69	Nil	40 to 69
Industrial and Allied	*Athi River Mining Ltd*	3 to 9	Nil	8 to 9
	Bamburi Cement Ltd	15 to 35	Nil	30 to 35
	British American Tobacco Ltd	48 to 102	Nil	67 to 102
	B O C Gases Ltd	15 to 35	Nil	30 to 35
	Carbacid Investments Ltd	64 to 144	Nil	77 to 144
	Crown Berger Ltd	4 to 25	4 to 7	Nil
	Dunlop Kenya Ltd	5 to 24	Nil	11 to 24
	EA Cables Ltd	6 to 43	Nil	19 to 43
	EA Packaging Ltd	5 to 20	Nil	8 to 20
	EA Portland Cement Ltd	2 to 40	Nil	16 to 40
	Firestone East Africa Ltd	12 to 23	Nil	17 to 23
	East Africa Breweries Ltd	61 to 107	Nil	71 to 107
	Kenya National Mills Ltd	3 to 28	Nil	11 to 28
	Kenya Oil Co Ltd	45 to 146	Nil	74 to 146
	Kenya Power & Lighting Ltd	70 to 140	Nil	94 to 140
	Total Kenya Ltd	33 to 67	Nil	53 to 67
	Unga Group Ltd	4 to 79	Nil	38 to 80

TABLE 4.3.7

Exercise Price Ranges- January-June 2000

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	68 to 148	Nil	75 to 148
	Eaagads Limited	17 to 30	Nil	27 to 30
	George Williamson Kenya Ltd	50 to 166	Nil	79 to 166
	Kakuzi Ltd	50 to 112	Nil	67 to 112
	Kapchorua Tea Co Ltd	151	Nil	151
	Limuru Tea Co Ltd	678	Nil	650 to 678
	Rea Vipingo Ltd	3 to 5	Nil	4 to 5
	Sasini Tea & Coffee Ltd	26 to 60	Nil	36 to 60
Finance & Investment	*Barclays Bank Ltd*	49 to 134	49 to 50	106 to 134
	City Trust Ltd	18 to 30	Nil	21 to 30
	CFC Bank Ltd	6 to 18	Nil	11 to 18
	Diamond Trust Bank Kenya	14 to 30	Nil	21 to 30
	Housing Finance Co (K) Ltd	1 to 28	Nil	10 to 28
	ICDC Investments Co Ltd	34 to 71	Nil	54 to 71
	Jubilee Insurance Co Ltd	18 to 36	Nil	23 to 36
	Kenya Commercial Bank Ltd	14 to 37	14 to 27	Nil
	National Bank of Kenya Ltd	2 to 7	Nil	4 to 7
	National Industrial Credit Ltd	13 to 39	Nil	22 to 39
	Pan Africa Insurance Ltd	11 to 33	Nil	21 to 33
	Standard Chartered Bank Ltd	21 to 87	21 to 44	Nil
Commercial & Services	*A Baumann & Co Ltd*	9 to 17	Nil	15 to 17
	CMC Holdings Ltd	16 to 33	Nil	17 to 33
	Car & General (K) Ltd	2 to 28	2 to 6	24 to 28
	Express Kenya Ltd	15 to 22	Nil	20 to 22
	Kenya Airways Ltd	6 to 13	Nil	9 to 13
	Marshalls (EA) Ltd	16 to 28	Nil	19 to 28
	Nation Media Group Ltd	68 to 109	Nil	76 to 109
	Pearl Drycleaners Ltd	2 to 4	Nil	3 to 4
	Standard Newspapers Ltd	2 to 46	Nil	8 to 46
	Tourism Promotion Services	3 to 38	Nil	29 to 38
	Uchumi Supermarkets Ltd	36 to 58	36 to 37	50 to 58
Industrial and Allied	*Athi River Mining Ltd*	2 to 8	Nil	5 to 8
	Bamburi Cement Ltd	25 to 37	25 to 28	Nil
	British American Tobacco Ltd	26 to 110	Nil	74 to 110
	B O C Gases Ltd	37 to 85	Nil	48 to 85
	Carbacid Investments Ltd	27 to 83	Nil	54 to 83
	Crown Berger Ltd	6 to 16	11 to 16	Nil
	Dunlop Kenya Ltd	6 to 11	Nil	8 to 11
	EA Cables Ltd	5 to 29	Nil	11 to 29
	EA Packaging Ltd	2 to 28	2 to 6	Nil
	EA Portland Cement Ltd	8 to 16	8 to 11	Nil
	Firestone East Africa Ltd	9 to 21	Nil	14 to 21
	East Africa Breweries Ltd	58 to 93	Nil	68 to 93
	Kenya National Mills Ltd	2 to 21	2 to 6	Nil
	Kenya Oil Co Ltd	53 to 101	53 to 80	Nil
	Kenya Power & Lighting Ltd	35 to 126	Nil	52 to 126
	Total Kenya Ltd	28 to 93	28 to 35	71 to 93
	Unga Group Ltd	6 to 45	Nil	17 to 45

TABLE 4.3.8

Exercise Price Ranges –July-December 2000

SECTOR	COMPANY	*Exercise price range*	*In the money call option*	*In the money put option*
Agricultural	*Brooke Bond Kenya Limited*	48 to 105	48 to 95	Nil
	Eaagads Limited	17 to 30	Nil	21 to 30
	George Williamson Kenya Ltd	41 to 135	41 to 91	Nil
	Kakuzi Ltd	36 to 80	Nil	56 to 80
	Kapchorua Tea Co Ltd	151	Nil	151
	Limuru Tea Co Ltd	678	Nil	650 to 678
	Rea Vipingo Ltd	2 to 4	Nil	4
	Sasini Tea & Coffee Ltd	20 to 47	Nil	37 to 47
Finance & Investment	*Barclays Bank Ltd*	51 to 139	Nil	80 to 139
	City Trust Ltd	16 to 28	16 to 22	Nil
	CFC Bank Ltd	5 to 16	Nil	13 to 16
	Diamond Trust Bank Kenya	10 to 23	Nil	15 to 23
	Housing Finance Co (K) Ltd	1 to 19	Nil	8 to 19
	ICDC Investments Co Ltd	33 to 70	Nil	49 to 70
	Jubilee Insurance Co Ltd	16 to 31	Nil	30 to 31
	Kenya Commercial Bank Ltd	18 to 47	Nil	27 to 47
	National Bank of Kenya Ltd	1 to 5	Nil	4 to 5
	National Industrial Credit Ltd	10 to 30	Nil	19 to 30
	Pan Africa Insurance Ltd	8 to 25	Nil	12 to 25
	Standard Chartered Bank Ltd	28 to 113	Nil	68 to 113
Commercial & Services	*A Baumann & Co Ltd*	9 to 16	Nil	10 to 16
	CMC Holdings Ltd	9 to 19	Nil	16 to 19
	Car & General (K) Ltd	2 to 31	Nil	18 to 31
	Express Kenya Ltd	15 to 22	Nil	18 to 22
	Kenya Airways Ltd	6 to 13	6 to 8	Nil
	Marshalls (EA) Ltd	13 to 23	Nil	20 to 23
	Nation Media Group Ltd	51` to 81	Nil	70 to 81
	Pearl Drycleaners Ltd	1 to 3	Nil	3
	Standard Newspapers Ltd	1 to 25	Nil	16 to 25
	Tourism Promotion Services)	2 to 38	Nil	8 to 38
	Uchumi Supermarkets Ltd	39 to 62	39 to 47	Nil
Industrial and Allied	*Athi River Mining Ltd*	2 to 7	Nil	5 to 7
	Bamburi Cement Ltd	28 to 42	28 to 33	Nil
	British American Tobacco Ltd	28 to 119	28 to 40	91 to 119
	B O C Gases Ltd	27 to 63	Nil	53 to 63
	Carbacid Investments Ltd	24 to 74	Nil	41 to 74
	Crown Berger Ltd	7 to 18	Nil	10 to 18
	Dunlop Kenya Ltd	4 to 9	Nil	7 to 9
	EA Cables Ltd	3 to 18	3 to 7	Nil
	EA Packaging Ltd	3 to 39	Nil	9 to 39
	EA Portland Cement Ltd	9 to 17	Nil	13 to 17
	Firestone East Africa Ltd	7 to 17	Nil	12 to 17
	East Africa Breweries Ltd	58 to 93	58 to 72	Nil
	Kenya National Mills Ltd	3 to 24	Nil	8 to 24
	Kenya Oil Co Ltd	29 to 270	Nil	75 to 264
	Kenya Power & Lighting Ltd	20 to 70	Nil	42 to 70
	Total Kenya Ltd	30 to 98	30 to 42	Nil
	Unga Group Ltd	4 to 30	Nil	19 to 30

4.4: Summary of in the money options

Tables 4.4.1 through to 4.4.4 gives a sector by sector summary of the number of in-the-money options when the exercise price ranges per section 4.3 are simulated using the Black and Scholes option pricing model.

4.4.1: Agricultural sector

This sector, other than in the period January to June 1998, consistently has only in the money put option, implying a general fall in market share prices. The stocks traded in this sector are basically tea and coffee companies and fall in share prices is attributed to among other factors, fall in world market prices (the bulk of these companies' tea/coffee stocks are sold in overseas markets) and first drought and then El Nino which drastically affected crop output by these companies and in turn, overall sales and profitability.

Table 4.4.1-Summary of in-the-money options - agricultural sector

Year	Period	Total no of firms in the sector	No with in the money call options	No with in the money put options	No of firms with both in the money Call and put options
1997	January-June	8	1	7	0
	July-December	8	3	7	2
1998	January-June	8	4	4	0
	July-December	8	1	7	0
1999	January-June	8	2	7	1
	July-December	8	0	8	0
2000	January-June	8	2	8	2
	July-December	8	2	6	0

4.4.2: Finance and investment sector

While the stocks in this sector also largely exhibit in the money put options, the exercise price ranges are much lower (See appendix 7) implying lower volatility in share price movements. Decline in share prices is attributed to factors such as higher provisioning for bad and doubtful debts following more stringent requirements by the Central Bank of Kenya which has resulted in the banks (which dominate this sector) reporting much lower profits. In addition, companies in this sector would make high earnings by largely investing in risk–free treasury bills. As the rates on the later have continued to decline, so have the reported earnings by the companies.

Table 4.4.2-Summary of in-the-money options – Finance & Investment sector

Year	Period	Total no of firms in the sector	No with in the money call options	No with in the money put options	No of firms with both in the money Call and put options
1997	January-June	12	6	7	1
	July-December	12	0	12	0
1998	January-June	12	1	12	1
	July-December	12	2	10	0
1999	January-June	12	3	10	1
	July-December	12	2	10	0
2000	January-June	12	3	10	1
	July-December	12	1	11	0

4.4.3: Commercial and services sector

This sector has a mixture of motor, retail, travel and media companies. Over the last 4 years, the motor industry has been plagued by the influx of cheap second-hand vehicles, popularly referred to as 'mitumbas' which have significantly impaired their performance. In the year 2000, one of these companies was put under receivership. The other companies in the sector have had somewhat mixed performance thus resulting in wide fluctuations in share price movements and thus the exercise ranges for in-the-money European options. Through the use of options, investors would have hedged/cushioned their investments against the decline in the performance of the stocks.

Table 4.4.3-Summary of results of in-the-money options – Commercial & Services sector

Year	Period	Total no of firms in the sector	No with in the money call options	No with in the money put options	No of firms with both in the money Call and put options
1997	January-June	11*	2	10	0
	July-December	11*	0	11	0
1998	January-June	12	1	12	1
	July-December	12	4	11	1
1999	January-June	12	2	10	0
	July-December	12	2	10	0
2000	January-June	11**	2	11	2
	July-December	12	2	9	0

* TPS-Serena excluded as not listed for a full year.
** 1 company in this sector was excluded as trading on the Exchange was suspended during the year, following the placement of the company under receivership.

4.4.4: Industrial and allied sector

This sector largely comprises manufacturing concerns which have endured the full impact of the liberalization of the Kenyan economy which has resulted in an influx of imported, low priced commodities) power-rationing, high interest rates on loan and overdraft facilities, to mention but a few. The overall result has a general deterioration in their profitability and thus their share price performance. Again, through the use of options, investors would have hedged/cushioned their investments against the decline in the performance of the stocks.

Table 4.4.4-Summary of results of in-the-money options – Industrial & Allied sector

Year	Period	Total no of firms in the sector	No with in the money call options	No with in the money put options	No of firms with both in the money Call and put options
1997	January-June	16***	6	9	0
	July-December	16***	0	16	0
1998	January-June	17	6	14	2
	July-December	17	2	15	0
1999	January-June	17	4	14	1
	July-December	17	1	16	0
2000	January-June	17	7	11	1
	July-December	17	5	13	1

*** Athi River Mining Company excluded as not listed for a full year

4.5 Possible pay-offs using options

The literature review indicated that if an investor anticipates a certain directional movement in the price of a stock, the right to buy or sell that stock at a predetermined price, for a specific duration of time can offer an attractive investment opportunity. The decision as to what type of option to buy is dependent on whether the investor's outlook for the respective security is positive (bullish) or negative (bearish). If the outlook is positive, buying a call option creates the opportunity to share in the upside potential of a stock without having to risk more than a fraction of its market value. Conversely, if a downward movement is anticipated, buying a put option will enable one to protect against the downside risk without limiting profit potential. Purchasing options offers one the ability to position oneself according to your market expectations in a manner such that you can both profit and protect with limited risk.

Based on the option values simulated for the period 1997 to 2000, possible pay-offs for investors with stock options on the Nairobi Stock Exchange during that period are summarised below. Nil transaction costs have been assumed. The results thus indicate possibilities of investors having profited through hedging using options. The study by Whaley (1982) on the New York Stock Exchange however indicated that profits from buying individual apparently undervalued options and selling individual apparently overvalued options were insufficient to cover the market maker's spread, let alone

other transaction costs, such as commissions and transfer fees and that it is not possible to make money by trading on the basis of any mispricing implied by the Black and Scholes model. In the absence of an operational options exchange in Kenya, it is difficult to estimate what the transaction costs would be and eliminate them in the working hereunder. It may be assumed that the results of the Whaley study would apply in the Kenyan context, until proved otherwise.

4.5.1: Agricultural sector

The stocks with the highest volatility, for the 4 years under review, per table 4.2.1a, was George Williamson Kenya (GWK) in 1997. Using options, an investor would have hedged as follows. (See appendix 6-1997 data): The share price for GWK at the beginning of the period July-December 1997 was Sh 70. Assuming a bullish market, an investor may have invested in a call option which allowed him to buy the shares at Sh 67 per share at the end of December 1997. The actual share price at the end of December 1997 was Sh 86. Thus the investor's gain would be as follows:

- Exercise the call option thus buying the GWK shares at Sh 67 (Say 100 shares at Sh 67 = Sh 6,700)
- The true value of the option would be Sh 6,700 less the cost of buying the option (that is, the call price which was Sh 18.0323 per share thus Sh 1,803.23) which adds up to Sh 4,896.77.

- The investor would then sell the shares at the ruling price of Sh 86 per share thus making a gain of Sh 3,703,23 (100 shares @ 86 minus Sh 4,896.77) assuming nil transaction costs. In an active options market, transaction costs (eg brokerage fees) would need to be taken into account.

4.5.2: Finance and Investment sector

The stocks with the highest volatility, for the 4 years under review, per table 4.2.2a, were City Trust and ICDC Investment (ICDCI) in 1997 and 1998. Using options, an investor would have hedged as follows. (See appendix 6-1997 data): The share price for ICDCI at the beginning of the period January-June 1997 was Sh 40. Assuming a bullish market, an investor may have invested in a call option which allowed him to buy the shares at Sh 40 per share at the end of June 1997. The actual share price at the end of June 1997 was Sh 50. Thus the investor's gain would be as follows:

- Exercise the call option thus buying the ICDCI shares at Sh 40 (Say 100 shares at Sh 40= Sh 4,000)
- The true value of the option would be Sh 4,000 less the cost of buying the option (that is , the call price which was Sh 10.3207 per share thus Sh 1,032.07) which adds up to Sh 2,967.93.
- The investor would then sell the shares at the ruling price of Sh 50 per share thus making a gain of Sh 2,032.07 (100 shares @

86 minus Sh 2,967.93) assuming nil transaction costs. In an active options market, transaction costs (eg brokerage fees) would need to be taken into account.

4.5.3: Commercial & Services sector

The stocks with the highest volatility, for the 4 years under review, per table 4.2.3a, were Lonhro Motors and Marshalls (EA) in 1997 and Pearl Dry Cleaners in 1999. Using options, an investor would have hedged, for example, on the Pearl Dry Cleaners share price movement as follows. (See appendix 6-1999 data): The share price for Pearl Dry Cleaners at the beginning of the period July-December 1999 was Sh 10. Assuming a bearish market, an investor may have invested in a put option which allowed him to buy the shares at Sh 6 per share at the end of December 1999. The actual share price at the end of December was Sh 3. Thus the investor's gain would be as follows:

- Exercise the call option thus buying the Pearl Dry Cleaners shares at Sh 6 (Say 100 shares at Sh 6 = Sh 600)
- The true value of the option would be Sh 600 less the cost of buying the option (that is, the put price which was Sh 0.8931 per share thus Sh 89.31) which adds up to Sh 510.69.
- Had the investor not hedged against the share price movement and he wanted to sell off the shares in December 1999, the market value would have been Sh 300 (100 shares @ Sh 3, the

ruling market price). Using options, the investor has gained Sh 210.69, assuming nil transaction costs.

4.5.4: Industrial & Allied Sector

The stocks with the highest volatility, for the 4 years under review, per table 4.2.4a, were Dunlop in 1997 and East Africa Portland Cement (EAPCC) in 1999. Using options, an investor would have hedged, for example, on the EAPCC share price movement as follows. (See appendix 6-1999 data): The share price for EAPCC at the beginning of the period July-December 1999 was Sh 14.5. Assuming a bearish market, an investor may have invested in a put option which allowed him to buy the shares at Sh 16 per share at the end of December 1999. The actual share price at the end of December was Sh 11.2. Thus the investor's gain would be as follows:

- Exercise the call option thus buying the EAPCC shares at Sh 16 (Say 100 shares at Sh 16 = Sh 1,600)
- The true value of the option would be Sh 1,600 less the cost of buying the option (that is, the put price which was Sh 3.9776 per share thus Sh 397.76) which adds up to Sh 1,202.24.
- Had the investor not hedged against the share price movement and he wanted to sell off the shares in December 1999, the market value would have been Sh 1,120 (100 shares @ Sh 11.2, the ruling market price). Using options, the investor has gained Sh 82.24, assuming nil transaction costs.

CHAPTER 5: RESEARCH CONCLUSION

5.1 Conclusion

The results of the study indicate that the returns on quoted stocks for the period 1997 to 2000 were markedly poor as share prices continued to decline in line with poor earnings reported by the majority of quoted stocks.

This study also revealed that shares on the Nairobi Stock Exchange have share price movements that are volatile enough to make it worthwhile to hedge against such movements. With the exception of three firms (Kapchorua Tea Company, Limuru Tea Company and Regent Undervalued Assets Fund) all the other shares had significant enough volatilities that one could have hedged against in order to better manage risk.

The study shows that exercise price ranges can be mathematically determined and for the period under study, these were reasonable in so far as they fell within the actual share price ranges and were consistent with individual stock volatilities.

The study revealed that the Black and Scholes model can be applied to determine option values in a Kenyan context. The possible pay-offs , based

on hedging strategies, indicated that investors could profit, assuming nil transaction costs, through use of options. This results of studies done elsewhere , in particular that done by Whaley in 1982 on New York Exchange stock indicate transaction costs virtually wipe off any profits and/or mispricing by the B-S model. In the absence of other evidence, it would be reasonable to assume that the same would apply in Kenya once an options exchange is operationalized.

5.2 Limitations of study

Due to the time constraints under which the project was undertaken, monthly, as opposed to daily, share prices were used to compute stock volatility. Daily share prices, although entailing voluminous data processing, are likely to give more accurate volatility for individual stock. This is especially so when non-trading days (as tested by Eugene Fama and Kenneth French) are eliminated. The study by Fama and French suggested that volatility is far larger when the exchange is open than when it is closed. In other words, days when the exchange is closed should be ignored for the purpose of the volatility calculation.

Nil dividend was assumed in the computation of option values. That is the Black and Scholes model was used in its purest form. It would be insightful to assess the effect of dividend adjustment on the option values.

Annual average Central Bank of Kenya rates were used as the risk free rates for the years under review. Use of six-month figures may result in variation of the option values obtained.

5.3 Suggestions for further research

Option pricing being a virtually untested area by Kenya academia, there is a lot of areas for further research. These include but are not limited to the following areas:

1. Analysis of the underlying characteristic/differentiating factors for the shares that have both in the money call and puts. This research suggested that this was limited to just a few stocks on the Exchange.

2. Incorporation of dividend payments (as suggested by Merton in 1973 whilst researching on the extensions of the Black and Scholes model) in the Black and Scholes model and assessment of the impact on option values and range for in the money option prices;

3. Use of daily share prices, appropriately adjusted for days when the Exchange was closed and the assessment of the impact on the computation of stock volatility. Perhaps the study could be limited to one sector of the Exchange.

4. As and when an Options Exchange is established in Kenya, a comparative study of mathematically generated exercise price ranges and the actual ranges quoted by the Exchange, and the reasons for the variations;

5. Detailed study of the Greek letters in option values.

5.0 REFERENCES

Beckers, S, *The Constant Elasticity of Variance Model and Its Implications for Option Pricing*, Journal of Finance, June 1980

Bhattarcharya, M, *Empirical Properties of the Black-Scholes Formula under Ideal Conditions*, Journal of Finance and Quantitative Analysis, December 1980

Bhattarcharya, *M, Transaction Data Tests on the Efficiency of the Chicago Board of Options Exchange*, Journal of Financial Economics, August 1983

Black Fisher, *Studies of Stock Price Volatility Changes*, Proceedings of the Meetings of the American Statistical Association, Business and Economic Statistics Section, Chicago, 1976

Black Fischer and Myron Scholes , *The pricing of options and corporate liabilities*, Journal of Political Economy (May/June 1973)

Blatterg, R and N Gonedes, *A Comparison of the Stable and Student Distributions as Stochastic Models of Stock Prices*, Journal of Business, 1974

Brown C Keith and Reilly K Frank , *Investment analysis and portfolio management*, Sixth edition, Chapters 8, 22 and 24, The Dryden Press

Capital Markets Authority, *A reform strategy paper on proposed fundamental reorganization of Kenya's capital market*, March 2000

Capital Markets Authority, June 2000 Annual Report

Chicago Board Options Exchange (CBOE), *Options education, equity options basics*, CBOE website, www.cboe.com

Cox, J and S Ross, *The Valuation of Options for Alternative Stochastic Processes*, The Journal of Financial Economics, January-March 1976

Figlewski S, *Margins and market Integrity: Margin Setting for Stock Index Futures and Options*, Journal of Futures Markets, 1984

Galai, D, *Tests of Market Efficiency on the Chicago Board of Options Exchange*, Journal of Business, April 1977

Geske R, and R Roll, *On Valuing American Call Options with the Black- Scholes European Formula*, Journal of Finance, 1984

Gibson Rajna and Zimmerman Heinz *The benefits and risks of derivative instruments: An Economic Perspective*, December 1994

Hull John , *Options, futures and other derivatives*, 4th Edition, Prentice Hall International Editions

Iraki W N, *Prospects of a futures market in Kenya*, Unpublished MBA research paper, 1996

Macbeth J and L Merville, *An Empirical Examination of the Black-Scholes Call Option Pricing Model*, Journal of Finance, December 1979

Macbeth J and L Merville, *Tests of the Black-Scholes and Cox Call Option Valuation Models*, Journal of Finance, May 1980

Merton R, *The theory of Rational Option Pricing*, Bell Journal of Economics and Management Science, 1973

Merton R, *On the Pricing of Corporate Debt: The Risk Structure of Interest Rates*, Journal of Finance, 1974

Merton R, *Option Pricing When Underlying Stock Returns Are Discontinuous*, Journal of Financial Economics, 1976

Pandey I M , *Financial Management*, 8th edition, Chapter 10

Rendelman J Richard JR and Latane Henry , *Standard deviations of stock price ratios implied in option prices,* Journal of Finance, May 1976

Roll R, *An Analytic Valuation Formula for Unprotected American Call Options on Stocks with Known Dividends*, Journal of Financial Economics, November 1977

Rosenberg B, *The Behavior of Random Variables with Nonstationary Variance and the Distribution of Security Prices*, manuscript, University of California, Berkeley, 1973

Rubinstein, M, *Nonparametric Tests of Alternative Option Pricing Models*, Journal of Finance, June 1985

Samuelson P, *Proof that Properly Anticipated Prices Fluctuate Randomly*, Industrial Management Review, 1965

Samuelson P, *Proof That Properly Discounted Present Values of Assets Vibrate Randomly*, in Nagatani and Crowley,eds, Collected Scientific Papers of Paul A Samuelson, VOL IV, MIT Press, Cambridge, Mass.,, 1977

Sharaway H S , *World Wide Options,* Geocities Website

Ward C, *Option pricing,* 1985

Whaley R, *On the valuation of American Call Options on Stocks with Known Dividends*, Journal of Financial Economics, June 1981

Whaley R, *Valuation of American Call Options on Dividend Paying Stocks: Empirical Tests*, Journal of Financial Economics, 1982

Whaley Robert E , Stoll R Hans, *Futures and options, theory and applications*, 1993

APPENDIX 1- COMPUTATION OF MONTHLY RETURNS

GRICULTURAL SECTOR 1997

OMPANY

rooke Bond Kenya Limited

Month	*Closing stock price* Sh	*Price relative* S1/S1-1	*Monthly return* U1=ln (S1/S1-1)	U1*U1
anuary	149			0.0000
ebruary	150	1.0067	0.0067	0.0000
arch	135	0.9000	-0.1054	0.0111
pril	124	0.9185	-0.0850	0.0072
ay	124	1.0000	0.0000	0.0000
ne	124	1.0000	0.0000	0.0000
ly	123	0.9919	-0.0081	0.0001
ugust	123	1.0000	0.0000	0.0000
eptember	121	0.9837	-0.0164	0.0003
ctober	120	0.9917	-0.0083	0.0001
ovember	110	0.9167	-0.0870	0.0076
ecember	110	1.0000	0.0000	0.0000
			-0.3035	**0.0263**

agads Limited

anuary	27.25			0.0000
ebruary	25.75	0.9450	-0.0566	0.0032
arch	26	1.0097	0.0097	0.0001
pril	26	1.0000	0.0000	0.0000
ay	26	1.0000	0.0000	0.0000
ne	26	1.0000	0.0000	0.0000
ly	26	1.0000	0.0000	0.0000
ugust	26	1.0000	0.0000	0.0000
eptember	26	1.0000	0.0000	0.0000
ctober	43	1.6538	0.5031	0.2531
ovember	41.5	0.9651	-0.0355	0.0013
ecember	42	1.0120	0.0120	0.0001
			0.4326	**0.2578**

eorge Williamson Kenya Ltd

anuary	73.5			0.0000
ebruary	73.5	1.0000	0.0000	0.0000
arch	73.5	1.0000	0.0000	0.0000
pril	70.5	0.9592	-0.0417	0.0017
ay	69	0.9787	-0.0215	0.0005
ne	70	1.0145	0.0144	0.0002
ly	72	1.0286	0.0282	0.0008
ugust	76.5	1.0625	0.0606	0.0037
eptember	129	1.6863	0.5225	0.2730
ctober	126	0.9767	-0.0235	0.0006
ovember	86	0.6825	-0.3819	0.1459
ecember	86	1.0000	0.0000	0.0000
			0.1571	**0.4263**

kuzi Ltd

anuary	98			0.0000
ebruary	101	1.0306	0.0302	0.0009
arch	101	1.0000	0.0000	0.0000
pril	101	1.0000	0.0000	0.0000
ay	102	1.0099	0.0099	0.0001
ne	102	1.0000	0.0000	0.0000
ly	106	1.0392	0.0385	0.0015
ugust	130	1.2264	0.2041	0.0417
eptember	150	1.1538	0.1431	0.0205
ctober	145	0.9667	-0.0339	0.0011
ovember	96	0.6621	-0.4124	0.1701
ecember	96	1.0000	0.0000	0.0000
			-0.0206	**0.2358**

Kapchorua Tea Co Ltd

anuary	70			0.0000
ebruary	70	1.0000	0.0000	0.0000
arch	70	1.0000	0.0000	0.0000
pril	70	1.0000	0.0000	0.0000

	70	1.0000	0.0000	0.0000
	70	1.0000	0.0000	0.0000
	70	1.0000	0.0000	0.0000
ugust	70	1.0000	0.0000	0.0000
eptember	70	1.0000	0.0000	0.0000
ctober	70	1.0000	0.0000	0.0000
ovember	70	1.0000	0.0000	0.0000
ecember	70	1.0000	0.0000	0.0000
			0.0000	**0.0000**
uru Tea Co Ltd				
nuary	1300			0.0000
bruary	1300	1.0000	0.0000	0.0000
arch	1300	1.0000	0.0000	0.0000
ril	1300	1.0000	0.0000	0.0000
y	1300	1.0000	0.0000	0.0000
ne	1000	0.7692	-0.2624	0.0688
y	845	0.8450	-0.1684	0.0284
ugust	850	1.0059	0.0059	0.0000
eptember	850	1.0000	0.0000	0.0000
ctober	750	0.8824	-0.1252	0.0157
ovember	750	1.0000	0.0000	0.0000
ecember	750	1.0000	0.0000	0.0000
			-0.5500	**0.1129**
a Vipingo Ltd				
nuary	11			0.0000
bruary	10.3	0.9364	-0.0658	0.0043
arch	9	0.8738	-0.1349	0.0182
ril	8.4	0.9333	-0.0690	0.0048
y	9	1.0714	0.0690	0.0048
ne	9.3	1.0333	0.0328	0.0011
y	8.3	0.8925	-0.1138	0.0129
ugust	8.65	1.0422	0.0413	0.0017
eptember	9.05	1.0462	0.0452	0.0020
ctober	8.1	0.8950	-0.1109	0.0123
ovember	8.75	1.0802	0.0772	0.0060
ecember	9	1.0286	0.0282	0.0008
			-0.2007	**0.0689**
asini Tea & Coffee Ltd				
nuary	60			0.0000
bruary	82	1.3667	0.3124	0.0976
arch	75	0.9146	-0.0892	0.0080
ril	76	1.0133	0.0132	0.0002
y	75.5	0.9934	-0.0066	0.0000
ne	85	1.1258	0.1185	0.0140
y	80	0.9412	-0.0606	0.0037
ugust	87	1.0875	0.0839	0.0070
eptember	98	1.1264	0.1191	0.0142
ctober	94	0.9592	-0.0417	0.0017
ovember	94	1.0000	0.0000	0.0000
ecember	94	1.0000	0.0000	0.0000
			0.4490	**0.1464**

MMERCIAL AND SERVICES SECTOR 1997

MPANY

	Closing stock price	*Price relative*	*Monthly return*	
Baumann & Co Ltd	Sh	S1/S1-1	U1=ln (S1/S1-1)	U1*U1
nuary	33			0.0000
bruary	42	1.2727	0.2412	0.0582
rch	40.5	0.9643	-0.0364	0.0013
il	40.5	1.0000	0.0000	0.0000
y	26	0.6420	-0.4432	0.1964
e	26	1.0000	0.0000	0.0000
y	25	0.9615	-0.0392	0.0015
gust	20	0.8000	-0.2231	0.0498
tember	19	0.9500	-0.0513	0.0026
ober	18.4	0.9684	-0.0321	0.0010
vember	15.55	0.8451	-0.1683	0.0283
cember	16	1.0289	0.0285	0.0008
			-0.7239	**0.3400**
C Holdings Ltd				
nuary	70			0.0000
bruary	80	1.1429	0.1335	0.0178
rch	81	1.0125	0.0124	0.0002
il	70	0.8642	-0.1460	0.0213
y	72.5	1.0357	0.0351	0.0012
e	82.5	1.1379	0.1292	0.0167
y	90	1.0909	0.0870	0.0076
gust	80	0.8889	-0.1178	0.0139
tember	80	1.0000	0.0000	0.0000
ober	68	0.8500	-0.1625	0.0264
vember	80	1.1765	0.1625	0.0264
cember	80	1.0000	0.0000	0.0000
			0.1335	**0.1315**
ar & General (K) Ltd				
nuary	20			0.0000
bruary	20	1.0000	0.0000	0.0000
rch	20	1.0000	0.0000	0.0000
il	20	1.0000	0.0000	0.0000
y	16.1	0.8050	-0.2169	0.0471
e	17	1.0559	0.0544	0.0030
y	16.25	0.9559	-0.0451	0.0020
gust	16	0.9846	-0.0155	0.0002
tember	16	1.0000	0.0000	0.0000
ober	16	1.0000	0.0000	0.0000
vember	16.1	1.0063	0.0062	0.0000
cember	16	0.9938	-0.0062	0.0000
			-0.2231	**0.0524**
Express Kenya Ltd				
nuary	76			0.0000
bruary	83.5	1.0987	0.0941	0.0089
rch	82	0.9820	-0.0181	0.0003
il	75	0.9146	-0.0892	0.0080
y	75	1.0000	0.0000	0.0000
e	71	0.9467	-0.0548	0.0030
y	68	0.9577	-0.0432	0.0019
gust	65	0.9559	-0.0451	0.0020
tember	58	0.8923	-0.1139	0.0130
ober	58.5	1.0086	0.0086	0.0001
vember	59	1.0085	0.0085	0.0001
cember	59	1.0000	0.0000	0.0000
			-0.2532	**0.0372**
Kenya Airways Ltd				

uary	8.5			0.0000
ruary	8	0.9412	-0.0606	0.0037
rch	8.35	1.0438	0.0428	0.0018
il	8.4	1.0060	0.0060	0.0000
y	8.2	0.9762	-0.0241	0.0006
e	8.2	1.0000	0.0000	0.0000
y	8	0.9756	-0.0247	0.0006
ust	8	1.0000	0.0000	0.0000
tember	7.6	0.9500	-0.0513	0.0026
ber	7.25	0.9539	-0.0471	0.0022
mber	7.5	1.0345	0.0339	0.0011
mber	8	1.0667	0.0645	0.0042
			-0.0606	**0.0169**
hro Motors (EA) Ltd				
uary	128			0.0000
ruary	125	0.9766	-0.0237	0.0006
rch	200	1.6000	0.4700	0.2209
il	200	1.0000	0.0000	0.0000
y	72.5	0.3625	-1.0147	1.0297
e	82.5	1.1379	0.1292	0.0167
y	60	0.7273	-0.3185	0.1014
ust	50	0.8333	-0.1823	0.0332
tember	47	0.9400	-0.0619	0.0038
ber	39	0.8298	-0.1866	0.0348
mber	39	1.0000	0.0000	0.0000
mber	39	1.0000	0.0000	0.0000
			-1.1885	**1.4411**
rshalls (EA) Ltd				
nuary	47.5			0.0000
ruary	47.75	1.0053	0.0052	0.0000
rch	48	1.0052	0.0052	0.0000
il	50	1.0417	0.0408	0.0017
y	66	1.3200	0.2776	0.0771
e	77	1.1667	0.1542	0.0238
y	88	1.1429	0.1335	0.0178
ust	86	0.9773	-0.0230	0.0005
tember	32	0.3721	-0.9886	0.9774
ber	47.25	1.4766	0.3897	0.1519
mber	41	0.8677	-0.1419	0.0201
mber	41	1.0000	0.0000	0.0000
			-0.1472	**1.2703**
tion Media Group Ltd				
nuary	113			0.0000
ruary	109	0.9646	-0.0360	0.0013
rch	111	1.0183	0.0182	0.0003
il	160	1.4414	0.3656	0.1337
y	168	1.0500	0.0488	0.0024
e	116	0.6905	-0.3704	0.1372
y	112	0.9655	-0.0351	0.0012
ust	122	1.0893	0.0855	0.0073
tember	126	1.0328	0.0323	0.0010
ber	127	1.0079	0.0079	0.0001
mber	131	1.0315	0.0310	0.0010
mber	131	1.0000	0.0000	0.0000
			0.1478	**0.2855**
earl Drycleaners Ltd				
nuary	10			0.0000
ruary	10	1.0000	0.0000	0.0000
rch	10	1.0000	0.0000	0.0000
il	10.25	1.0250	0.0247	0.0006

		10.25	1.0000	0.0000	0.0000
		10.25	1.0000	0.0000	0.0000
		9	0.8780	-0.1301	0.0169
		9.2	1.0222	0.0220	0.0005
ember		10	1.0870	0.0834	0.0070
ber		10	1.0000	0.0000	0.0000
ember		10.5	1.0500	0.0488	0.0024
ember		11	1.0476	0.0465	0.0022
				0.0953	**0.0295**
ard Newspapers Ltd					
ary		9.05			0.0000
uary		14.55	1.6077	0.4748	0.2255
		14.25	0.9794	-0.0208	0.0004
		13.25	0.9298	-0.0728	0.0053
		14.5	1.0943	0.0902	0.0081
		25	1.7241	0.5447	0.2967
		32.5	1.3000	0.2624	0.0688
ust		41.25	1.2692	0.2384	0.0568
ember		50	1.2121	0.1924	0.0370
ber		48	0.9600	-0.0408	0.0017
ember		53	1.1042	0.0991	0.0098
ember		53	1.0000	0.0000	0.0000
				1.7675	**0.7102**
ism Promotion Services (Serena)					
uary	Not listed		0.0000		0.0000
uary	Not listed		0.0000		0.0000
ch	Not listed		0.0000		0.0000
	Not listed		0.0000		0.0000
		16.5	0.0000		0.0000
e		17.25	1.0455	0.0445	0.0020
		17.05	0.9884	-0.0117	0.0001
ust		15	0.8798	-0.1281	0.0164
tember		16.5	1.1000	0.0953	0.0091
ober		13.8	0.8364	-0.1787	0.0319
vember		14	1.0145	0.0144	0.0002
cember		14	1.0000	0.0000	0.0000
				-0.1643	**0.0597**
humi Supermarkets Ltd					
uary		39.75			0.0000
ruary		41.5	1.0440	0.0431	0.0019
ch		35.25	0.8494	-0.1632	0.0266
il		39	1.1064	0.1011	0.0102
y		40.25	1.0321	0.0315	0.0010
e		40	0.9938	-0.0062	0.0000
y		39	0.9750	-0.0253	0.0006
ust		40	1.0256	0.0253	0.0006
tember		50	1.2500	0.2231	0.0498
ober		37	0.7400	-0.3011	0.0907
vember		39	1.0541	0.0526	0.0028
cember		39	1.0000	0.0000	0.0000
				-0.0190	**0.1843**

FINANCE AND INVESTMENT SECTOR 1997

COMPANY

Barclays Bank Ltd	*Closing stock price* Sh	*Price relative* S1/S1-1	*Monthly return* U1=ln (S1/S1-	U1*U1
January	115			0.0000
February	114	0.9913	-0.0087	0.0001
March	102	0.8947	-0.1112	0.0124
April	108	1.0588	0.0572	0.0033
May	115	1.0648	0.0628	0.0039
June	110	0.9565	-0.0445	0.0020
July	109	0.9909	-0.0091	0.0001
August	108	0.9908	-0.0092	0.0001
September	107	0.9907	-0.0093	0.0001
October	108	1.0093	0.0093	0.0001
November	115	1.0648	0.0628	0.0039
December	115	1.0000	0.0000	0.0000
			0.0000	**0.0259**
City Trust Ltd				
January	33			0.0000
February	36	1.0909	0.0870	0.0076
March	33	0.9167	-0.0870	0.0076
April	34	1.0303	0.0299	0.0009
May	35	1.0294	0.0290	0.0008
June	35.75	1.0214	0.0212	0.0004
July	35	0.9790	-0.0212	0.0004
August	35	1.0000	0.0000	0.0000
September	34	0.9714	-0.0290	0.0008
October	34	1.0000	0.0000	0.0000
November	34	1.0000	0.0000	0.0000
December	34	1.0000	0.0000	0.0000
			0.0299	**0.0186**
CFC Bank Ltd				
January	22.75			0.0000
February	23	1.0110	0.0109	0.0001
March	21	0.9130	-0.0910	0.0083
April	19.5	0.9286	-0.0741	0.0055
May	20	1.0256	0.0253	0.0006
June	26	1.3000	0.2624	0.0688
July	22	0.8462	-0.1671	0.0279
August	20	0.9091	-0.0953	0.0091
September	20	1.0000	0.0000	0.0000
October	20	1.0000	0.0000	0.0000
November	17.6	0.8800	-0.1278	0.0163
December	18	1.0227	0.0225	0.0005
			-0.2342	**0.1372**
Diamond Trust Bank Kenya Ltd				
January	36.5			0.0000
February	37	1.0137	0.0136	0.0002
March	30.25	0.8176	-0.2014	0.0406
April	30	0.9917	-0.0083	0.0001
May	31.25	1.0417	0.0408	0.0017
June	30.25	0.9680	-0.0325	0.0011
July	29.75	0.9835	-0.0167	0.0003
August	26	0.8739	-0.1347	0.0182
September	25.5	0.9808	-0.0194	0.0004
October	22.5	0.8824	-0.1252	0.0157
November	21.75	0.9667	-0.0339	0.0011
December	22	1.0115	0.0114	0.0001

			-0.5063	**0.0793**
Housing Finance Co (K) Ltd				
January	24			0.0000
February	24	1.0000	0.0000	0.0000
March	24	1.0000	0.0000	0.0000
April	24	1.0000	0.0000	0.0000
May	24	1.0000	0.0000	0.0000
June	23.5	0.9792	-0.0211	0.0004
July	23.5	1.0000	0.0000	0.0000
August	20.5	0.8723	-0.1366	0.0187
September	20	0.9756	-0.0247	0.0006
October	19	0.9500	-0.0513	0.0026
November	19.05	1.0026	0.0026	0.0000
December	19	0.9974	-0.0026	0.0000
			-0.2336	**0.0224**
ICDC Investments Co Ltd				
January	40			0.0000
February	43.5	1.0875	0.0839	0.0070
March	46.25	1.0632	0.0613	0.0038
April	40	0.8649	-0.1452	0.0211
May	45	1.1250	0.1178	0.0139
June	50	1.1111	0.1054	0.0111
July	60	1.2000	0.1823	0.0332
August	66	1.1000	0.0953	0.0091
September	34.25	0.5189	-0.6560	0.4303
October	34.25	1.0000	0.0000	0.0000
November	34.5	1.0073	0.0073	0.0001
December	35	1.0145	0.0144	0.0002
			-0.1335	**0.5297**
Jubilee Insurance Co Ltd				
January	38.5			0.0000
February	44	1.1429	0.1335	0.0178
March	41.25	0.9375	-0.0645	0.0042
April	39	0.9455	-0.0561	0.0031
May	35.5	0.9103	-0.0940	0.0088
June	41.5	1.1690	0.1562	0.0244
July	38	0.9157	-0.0881	0.0078
August	38	1.0000	0.0000	0.0000
September	37	0.9737	-0.0267	0.0007
October	35	0.9459	-0.0556	0.0031
November	36.75	1.0500	0.0488	0.0024
December	37	1.0068	0.0068	0.0000
			-0.0397	**0.0724**
Kenya Commercial Bank Ltd				
January	90			0.0000
February	98.4	1.0933	0.0892	0.0080
March	94	0.9553	-0.0457	0.0021
April	86	0.9149	-0.0889	0.0079
May	96	1.1163	0.1100	0.0121
June	115	1.1979	0.1806	0.0326
July	105	0.9130	-0.0910	0.0083
August	98	0.9333	-0.0690	0.0048
September	98	1.0000	0.0000	0.0000
October	89	0.9082	-0.0963	0.0093
November	77	0.8652	-0.1448	0.0210
December	77	1.0000	0.0000	0.0000
			-0.1560	**0.1060**
National Bank of Kenya Ltd				

January	16			0.0000
February	15.7	0.9813	-0.0189	0.0004
March	15.7	1.0000	0.0000	0.0000
April	15.65	0.9968	-0.0032	0.0000
May	16	1.0224	0.0221	0.0005
June	15.2	0.9500	-0.0513	0.0026
July	16	1.0526	0.0513	0.0026
August	13.6	0.8500	-0.1625	0.0264
September	13.1	0.9632	-0.0375	0.0014
October	15.1	1.1527	0.1421	0.0202
November	12.5	0.8278	-0.1890	0.0357
December	13	1.0400	0.0392	0.0015
			-0.2076	**0.0914**
National Industrial Credit Ltd				
January	50			0.0000
February	47	0.9400	-0.0619	0.0038
March	48.75	1.0372	0.0366	0.0013
April	49.25	1.0103	0.0102	0.0001
May	55	1.1168	0.1104	0.0122
June	60	1.0909	0.0870	0.0076
July	61	1.0167	0.0165	0.0003
August	52	0.8525	-0.1596	0.0255
September	50	0.9615	-0.0392	0.0015
October	49	0.9800	-0.0202	0.0004
November	50	1.0204	0.0202	0.0004
December	50	1.0000	0.0000	0.0000
			0.0000	**0.0531**
Pan Africa Insurance Ltd				
January	51			0.0000
February	51.5	1.0098	0.0098	0.0001
March	53	1.0291	0.0287	0.0008
April	50	0.9434	-0.0583	0.0034
May	55	1.1000	0.0953	0.0091
June	63	1.1455	0.1358	0.0184
July	57	0.9048	-0.1001	0.0100
August	50	0.8772	-0.1310	0.0172
September	40	0.8000	-0.2231	0.0498
October	42	1.0500	0.0488	0.0024
November	41.75	0.9940	-0.0060	0.0000
December	42	1.0060	0.0060	0.0000
			-0.1942	**0.1113**
Standard Chartered Bank Ltd				
January	54			0.0000
February	51	0.9444	-0.0572	0.0033
March	46.75	0.9167	-0.0870	0.0076
April	45.25	0.9679	-0.0326	0.0011
May	46.25	1.0221	0.0219	0.0005
June	47	1.0162	0.0161	0.0003
July	47	1.0000	0.0000	0.0000
August	47	1.0000	0.0000	0.0000
September	45	0.9574	-0.0435	0.0019
October	44	0.9778	-0.0225	0.0005
November	46	1.0455	0.0445	0.0020
December	46	1.0000	0.0000	0.0000
			-0.1603	**0.0170**

MPANY

	Closing stock pric	Price relative	Monthly return	
	Sh	S1/S1-1	U1=ln (S1/S1-	U1*U1
River Mining Ltd				
uary	Not listed on NSE			
bruary	Not listed on NSE			
rch	Not listed on NSE			
	Not listed on NSE			
	Not listed on NSE			
	Not listed on NSE			
	Not listed on NSE			
ust	11.05		0.0000	
tember	11.5	1.0407	0.0399	0.0016
ober	9	0.7826	-0.2451	0.0601
ember	9	1.0000	0.0000	0.0000
ember	9	1.0000	0.0000	0.0000
			-0.2052	**0.0617**
mburi Cement Ltd				
uary	40		0.0000	0.0000
bruary	49.75	1.2438	0.2181	0.0476
rch	40	0.8040	-0.2181	0.0476
	41.5	1.0375	0.0368	0.0014
	39.75	0.9578	-0.0431	0.0019
e	37.5	0.9434	-0.0583	0.0034
	40.25	1.0733	0.0708	0.0050
ust	45	1.1180	0.1116	0.0124
tember	42	0.9333	-0.0690	0.0048
ober	37	0.8810	-0.1268	0.0161
vember	31.25	0.8446	-0.1689	0.0285
cember	36	1.1520	0.1415	0.0200
			-0.1054	**0.1886**
tish American Tobacco Ltd				
uary	83		0.0000	0.0000
bruary	62	0.7470	-0.2917	0.0851
rch	62	1.0000	0.0000	0.0000
il	61	0.9839	-0.0163	0.0003
y	63	1.0328	0.0323	0.0010
e	61	0.9683	-0.0323	0.0010
y	61	1.0000	0.0000	0.0000
ust	56	0.9180	-0.0855	0.0073
tember	51	0.9107	-0.0935	0.0087
ober	51	1.0000	0.0000	0.0000
vember	50	0.9804	-0.0198	0.0004
cember	50	1.0000	0.0000	0.0000
			-0.5068	**0.1039**
0 C Gases Ltd				
uary	70		0.0000	0.0000
bruary	74	1.0571	0.0556	0.0031
rch	40	0.5405	-0.6152	0.3785
il	89	2.2250	0.7998	0.6396
y	69	0.7753	-0.2545	0.0648
e	76	1.1014	0.0966	0.0093
y	75	0.9868	-0.0132	0.0002
ust	70	0.9333	-0.0690	0.0048
tember	71	1.0143	0.0142	0.0002
ober	70	0.9859	-0.0142	0.0002
vember	70	1.0000	0.0000	0.0000
cember	66	0.9429	-0.0588	0.0035
			-0.0588	**1.1041**
arbacid Investments Ltd				

	82		0.0000	0.0000
	86	1.0488	0.0476	0.0023
	85.5	0.9942	-0.0058	0.0000
	87	1.0175	0.0174	0.0003
	83.5	0.9598	-0.0411	0.0017
	84	1.0060	0.0060	0.0000
	77	0.9167	-0.0870	0.0076
	77	1.0000	0.0000	0.0000
	75	0.9740	-0.0263	0.0007
	69	0.9200	-0.0834	0.0070
	61.5	0.8913	-0.1151	0.0132
	66	1.0732	0.0706	0.0050
			-0.2171	**0.0378**
Berger Ltd				
	12.5		0.0000	0.0000
	9.9	0.7920	-0.2332	0.0544
	10.4	1.0505	0.0493	0.0024
	11	1.0577	0.0561	0.0031
	11	1.0000	0.0000	0.0000
	10.5	0.9545	-0.0465	0.0022
	11	1.0476	0.0465	0.0022
	11.75	1.0682	0.0660	0.0044
	11.5	0.9787	-0.0215	0.0005
	9.05	0.7870	-0.2396	0.0574
	9.6	1.0608	0.0590	0.0035
	10	1.0417	0.0408	0.0017
			-0.2231	**0.1316**
lop Kenya Ltd				
	275		0.0000	0.0000
	300	1.0909	0.0870	0.0076
	295	0.9833	-0.0168	0.0003
	285	0.9661	-0.0345	0.0012
	285	1.0000	0.0000	0.0000
	270	0.9474	-0.0541	0.0029
	270	1.0000	0.0000	0.0000
	270	1.0000	0.0000	0.0000
	455	1.6852	0.5219	0.2724
	455	1.0000	0.0000	0.0000
	104	0.2286	-1.4759	2.1783
	100	0.9615	-0.0392	0.0015
			-1.0116	**2.4642**
A Cables Ltd				
	37		0.0000	0.0000
	36	0.9730	-0.0274	0.0008
	29.5	0.8194	-0.1991	0.0397
	30.5	1.0339	0.0333	0.0011
	32.5	1.0656	0.0635	0.0040
	33	1.0154	0.0153	0.0002
	32	0.9697	-0.0308	0.0009
	32	1.0000	0.0000	0.0000
	32	1.0000	0.0000	0.0000
	32	1.0000	0.0000	0.0000
	27.25	0.8516	-0.1607	0.0258
	29	1.0642	0.0622	0.0039
			-0.2436	**0.0764**
A Packaging Ltd				
	70		0.0000	0.0000
	70	1.0000	0.0000	0.0000
	67.5	0.9643	-0.0364	0.0013
	50.5	0.7481	-0.2902	0.0842

	67	1.3267	0.2827	0.0799
	67	1.0000	0.0000	0.0000
	67	1.0000	0.0000	0.0000
ust	60	0.8955	-0.1103	0.0122
ember	57.5	0.9583	-0.0426	0.0018
ber	63	1.0957	0.0913	0.0083
ember	60.5	0.9603	-0.0405	0.0016
ember	49	0.8099	-0.2108	0.0444
			-0.3567	**0.2339**
Portland Cement Ltd				
uary	24.5		0.0000	0.0000
ruary	30	1.2245	0.2025	0.0410
ch	36.5	1.2167	0.1961	0.0385
l	39	1.0685	0.0662	0.0044
y	46.5	1.1923	0.1759	0.0309
e	44	0.9462	-0.0553	0.0031
y	44	1.0000	0.0000	0.0000
ust	42.25	0.9602	-0.0406	0.0016
tember	35	0.8284	-0.1883	0.0354
ber	35	1.0000	0.0000	0.0000
ember	25.5	0.7286	-0.3167	0.1003
ember	20	0.7843	-0.2429	0.0590
			-0.2029	**0.3142**
estone East Africa Ltd				
uary	30		0.0000	0.0000
ruary	31.25	1.0417	0.0408	0.0017
ch	26	0.8320	-0.1839	0.0338
l	27	1.0385	0.0377	0.0014
y	28	1.0370	0.0364	0.0013
e	28	1.0000	0.0000	0.0000
y	30.5	1.0893	0.0855	0.0073
ust	25.5	0.8361	-0.1790	0.0321
tember	25.75	1.0098	0.0098	0.0001
ber	21.5	0.8350	-0.1804	0.0325
ember	22.5	1.0465	0.0455	0.0021
ember	24	1.0667	0.0645	0.0042
			-0.2231	**0.1165**
ast Africa Breweries Ltd				
uary	52.5		0.0000	0.0000
ruary	62	1.1810	0.1663	0.0277
ch	62	1.0000	0.0000	0.0000
l	58.5	0.9435	-0.0581	0.0034
y	58.5	1.0000	0.0000	0.0000
e	60	1.0256	0.0253	0.0006
y	57	0.9500	-0.0513	0.0026
ust	50.5	0.8860	-0.1211	0.0147
tember	47.25	0.9356	-0.0665	0.0044
ber	47	0.9947	-0.0053	0.0000
ember	50.5	1.0745	0.0718	0.0052
ember	49	0.9703	-0.0302	0.0009
			-0.0690	**0.0595**
enya National Mills Ltd				
uary	34.75		0.0000	0.0000
ruary	36	1.0360	0.0353	0.0012
ch	36	1.0000	0.0000	0.0000
l	35	0.9722	-0.0282	0.0008
y	35.25	1.0071	0.0071	0.0001
e	47	1.3333	0.2877	0.0828
y	41.5	0.8830	-0.1245	0.0155
ust	40	0.9639	-0.0368	0.0014
tember	41.5	1.0375	0.0368	0.0014

	40	0.9639	-0.0368	0.0014
	38	0.9500	-0.0513	0.0026
	37	0.9737	-0.0267	0.0007
			0.0627	**0.1078**
Oil Co Ltd				
	71		0.0000	0.0000
	70	0.9859	-0.0142	0.0002
	68	0.9714	-0.0290	0.0008
	65.5	0.9632	-0.0375	0.0014
	61.5	0.9389	-0.0630	0.0040
	70	1.1382	0.1295	0.0168
	67.5	0.9643	-0.0364	0.0013
	63	0.9333	-0.0690	0.0048
	58.5	0.9286	-0.0741	0.0055
	51	0.8718	-0.1372	0.0188
	48.5	0.9510	-0.0503	0.0025
	48	0.9897	-0.0104	0.0001
			-0.3915	**0.0562**
Power & Lighting Ltd				
	90		0.0000	0.0000
	120	1.3333	0.2877	0.0828
	113	0.9417	-0.0601	0.0036
	124	1.0973	0.0929	0.0086
	170	1.3710	0.3155	0.0996
	171	1.0059	0.0059	0.0000
	175	1.0234	0.0231	0.0005
	168	0.9600	-0.0408	0.0017
	175	1.0417	0.0408	0.0017
	189	1.0800	0.0770	0.0059
	160	0.8466	-0.1666	0.0277
	180	1.1250	0.1178	0.0139
			0.6931	**0.2460**
tal Kenya Ltd				
	94		0.0000	0.0000
	94	1.0000	0.0000	0.0000
	62	0.6596	-0.4162	0.1732
	64	1.0323	0.0317	0.0010
	71.5	1.1172	0.1108	0.0123
	84.5	1.1818	0.1671	0.0279
	63	0.7456	-0.2936	0.0862
	58	0.9206	-0.0827	0.0068
	57	0.9828	-0.0174	0.0003
	51	0.8947	-0.1112	0.0124
	52	1.0196	0.0194	0.0004
	53	1.0192	0.0190	0.0004
			-0.5730	**0.3208**
Unga Group Ltd				
	120		0.0000	0.0000
	113	0.9417	-0.0601	0.0036
	111	0.9823	-0.0179	0.0003
	113	1.0180	0.0179	0.0003
	122	1.0796	0.0766	0.0059
	150	1.2295	0.2066	0.0427
	150	1.0000	0.0000	0.0000
	160	1.0667	0.0645	0.0042
	164	1.0250	0.0247	0.0006
	159	0.9695	-0.0310	0.0010
	120	0.7547	-0.2814	0.0792
	120	1.0000	0.0000	0.0000
			0.0000	**0.1377**

land Kenya Limited	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1)	U1*U1
	130.00			0.0000
	123.20	0.9477	-0.0537	0.0029
	120.00	0.9740	-0.0263	0.0007
	117.10	0.9758	-0.0245	0.0006
	120.20	1.0265	0.0261	0.0007
	131.70	1.0957	0.0914	0.0083
	143.20	1.0873	0.0837	0.0070
	149.60	1.0447	0.0437	0.0019
	148.00	0.9893	-0.0108	0.0001
	140.00	0.9459	-0.0556	0.0031
	125.20	0.8943	-0.1117	0.0125
	139.60	1.1150	0.1089	0.0119
			0.0712	**0.0497**
t Limited				
	39.90			0.0000
	37.00	0.9273	-0.0755	0.0057
	37.00	1.0000	0.0000	0.0000
	37.00	1.0000	0.0000	0.0000
	37.00	1.0000	0.0000	0.0000
	37.00	1.0000	0.0000	0.0000
	37.00	1.0000	0.0000	0.0000
	37.00	1.0000	0.0000	0.0000
	47.80	1.2919	0.2561	0.0656
	43.20	0.9038	-0.1012	0.0102
	43.20	1.0000	0.0000	0.0000
	43.20	1.0000	0.0000	0.0000
			0.0795	**0.0815**
w Williamson Kenya Ltd				
	110.00			0.0000
	121.70	1.1064	0.1011	0.0102
	136.00	1.1175	0.1111	0.0123
	151.80	1.1162	0.1099	0.0121
	155.10	1.0217	0.0215	0.0005
	141.00	0.9091	-0.0953	0.0091
	130.10	0.9227	-0.0805	0.0065
	130.20	1.0008	0.0008	0.0000
	132.00	1.0138	0.0137	0.0002
	132.10	1.0008	0.0008	0.0000
	136.00	1.0295	0.0291	0.0008
	142.00	1.0441	0.0432	0.0019
			0.2553	**0.0536**
kuzi Ltd				
	111.00			0.0000
	129.00	1.1622	0.1503	0.0226
	130.20	1.0093	0.0093	0.0001
	120.00	0.9217	-0.0816	0.0067
	120.00	1.0000	0.0000	0.0000
	141.90	1.1825	0.1676	0.0281
	139.90	0.9859	-0.0142	0.0002
	150.00	1.0722	0.0697	0.0049
	140.00	0.9333	-0.0690	0.0048
	139.80	0.9986	-0.0014	0.0000
	136.30	0.9750	-0.0254	0.0006
	140.00	1.0271	0.0268	0.0007
			0.2321	**0.0686**
Kapchorua Tea Co Ltd				
	70.00			0.0000
	75.50	1.0786	0.0756	0.0057
	75.50	1.0000	0.0000	0.0000
	75.50	1.0000	0.0000	0.0000
	75.50	1.0000	0.0000	0.0000
	75.50	1.0000	0.0000	0.0000
	94.00	1.2450	0.2192	0.0480
	94.00	1.0000	0.0000	0.0000
	94.00	1.0000	0.0000	0.0000
	94.00	1.0000	0.0000	0.0000
	95.00	1.0106	0.0106	0.0001
	95.00	1.0000	0.0000	0.0000
			0.3054	**0.0539**
Limuru Tea Co Ltd				
	755.00			0.0000
	755.00	1.0000	0.0000	0.0000
	751.70	0.9956	-0.0044	0.0000
	755.00	1.0044	0.0044	0.0000
	755.00	1.0000	0.0000	0.0000

755.00	1.0000	0.0000	0.0000
749.00	0.9921	-0.0080	0.0001
749.00	1.0000	0.0000	0.0000
760.00	1.0147	0.0146	0.0002
760.00	1.0000	0.0000	0.0000
760.00	1.0000	0.0000	0.0000
760.00	1.0000	0.0000	0.0000
		0.0066	**0.0003**

Ltd

7.50			0.0000
7.90	1.0533	0.0520	0.0027
7.10	0.8987	-0.1068	0.0114
7.00	0.9859	-0.0142	0.0002
7.00	1.0000	0.0000	0.0000
6.40	0.9143	-0.0896	0.0080
6.30	0.9844	-0.0157	0.0002
6.30	1.0000	0.0000	0.0000
6.40	1.0159	0.0157	0.0002
6.00	0.9375	-0.0645	0.0042
6.00	1.0000	0.0000	0.0000
6.00	1.0000	0.0000	0.0000
		-0.2231	**0.0270**

& Coffee Ltd

61.70			0.0000
80.40	1.3031	0.2647	0.0701
89.60	1.1144	0.1083	0.0117
70.20	0.7835	-0.2440	0.0595
76.00	1.0826	0.0794	0.0063
75.10	0.9882	-0.0119	0.0001
76.70	1.0213	0.0211	0.0004
75.00	0.9778	-0.0224	0.0005
77.90	1.0387	0.0379	0.0014
75.00	0.9628	-0.0379	0.0014
64.50	0.8600	-0.1508	0.0227
69.80	1.0822	0.0790	0.0062
		0.1234	**0.1806**

& Co Ltd	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1)	U1*U1
	15.60			0.0000
	15.70	1.0064	0.0064	0.0000
	16.00	1.0191	0.0189	0.0004
	16.00	1.0000	0.0000	0.0000
	16.30	1.0188	0.0186	0.0003
	15.50	0.9509	-0.0503	0.0025
	15.50	1.0000	0.0000	0.0000
	15.50	1.0000	0.0000	0.0000
	15.50	1.0000	0.0000	0.0000
	17.00	1.0968	0.0924	0.0085
	17.00	1.0000	0.0000	0.0000
	16.90	0.9941	-0.0059	0.0000
			0.0800	**0.0118**
oldings Ltd				
	58.70			0.0000
	49.00	0.8348	-0.1806	0.0326
	44.60	0.9102	-0.0941	0.0089
	35.20	0.7892	-0.2367	0.0560
	34.90	0.9915	-0.0086	0.0001
	35.00	1.0029	0.0029	0.0000
	35.30	1.0086	0.0085	0.0001
	35.40	1.0028	0.0028	0.0000
	36.00	1.0169	0.0168	0.0003
	35.50	0.9861	-0.0140	0.0002
	35.20	0.9915	-0.0085	0.0001
	33.00	0.9375	-0.0645	0.0042
			-0.5759	**0.1024**
General (K) Ltd				
	20.30			0.0000
	20.00	0.9852	-0.0149	0.0002
	13.20	0.6600	-0.4155	0.1727
	13.00	0.9848	-0.0153	0.0002
	11.80	0.9077	-0.0968	0.0094
	11.10	0.9407	-0.0612	0.0037
	12.00	1.0811	0.0780	0.0061
	12.00	1.0000	0.0000	0.0000
	12.00	1.0000	0.0000	0.0000
	12.00	1.0000	0.0000	0.0000
	12.00	1.0000	0.0000	0.0000
	12.00	1.0000	0.0000	0.0000
			-0.5257	**0.1923**
ress Kenya Ltd				
	72.50			0.0000
	55.00	0.7586	-0.2763	0.0763
	50.30	0.9145	-0.0893	0.0080
	45.80	0.9105	-0.0937	0.0088
	36.00	0.7860	-0.2408	0.0580
	30.00	0.8333	-0.1823	0.0332
	30.00	1.0000	0.0000	0.0000
	30.50	1.0167	0.0165	0.0003
	30.00	0.9836	-0.0165	0.0003
	31.30	1.0433	0.0424	0.0018
	30.30	0.9681	-0.0325	0.0011
	28.60	0.9439	-0.0577	0.0033
			-0.9302	**0.1910**
ya Airways Ltd				
	7.50			0.0000
	7.60	1.0133	0.0132	0.0002
	8.00	1.0526	0.0513	0.0026
	7.10	0.8875	-0.1193	0.0142
	7.00	0.9859	-0.0142	0.0002
	7.00	1.0000	0.0000	0.0000
	7.90	1.1286	0.1210	0.0146
	7.00	0.8861	-0.1210	0.0146
	7.10	1.0143	0.0142	0.0002
	7.30	1.0282	0.0278	0.0008
	7.20	0.9863	-0.0138	0.0002
	8.00	1.1111	0.1054	0.0111
			0.0645	**0.0588**
ohro Motors (EA) Ltd				
	41.90			0.0000
	39.80	0.9499	-0.0514	0.0026
	35.20	0.8844	-0.1228	0.0151
	35.10	0.9972	-0.0028	0.0000
	28.20	0.8034	-0.2189	0.0479

44.70	1.0518	0.0505	0.0025
40.20	0.8993	-0.1061	0.0113
40.20	1.0000	0.0000	0.0000
45.50	1.1318	0.1238	0.0153
45.50	1.0000	0.0000	0.0000
42.00	0.9231	-0.0800	0.0064
42.50	1.0119	0.0118	0.0001
42.50	1.0000	0.0000	0.0000
43.80	1.0306	0.0301	0.0009
37.60	0.8584	-0.1526	0.0233
44.60	1.1862	0.1707	0.0291
		0.0482	**0.0890**

FINANCE AND INVESTMENT SECTOR 1998

COMPANY

	Closing stock price	Price relative	Monthly return	
Barclays Bank Ltd	Sh	S1/S1-1	U1=ln (S1/S1-	U1*U1
January	115.20			0.0000
February	127.30	1.1050	0.0999	0.0100
March	95.70	0.7518	-0.2853	0.0814
April	91.40	0.9551	-0.0460	0.0021
May	104.30	1.1411	0.1320	0.0174
June	101.50	0.9732	-0.0272	0.0007
July	97.90	0.9645	-0.0361	0.0013
August	99.80	1.0194	0.0192	0.0004
September	98.00	0.9820	-0.0182	0.0003
October	99.00	1.0102	0.0102	0.0001
November	102.60	1.0364	0.0357	0.0013
December	122.20	1.1910	0.1748	0.0306
			0.0590	**0.1456**
City Trust Ltd				
January	74.50			0.0000
February	34.80	0.4671	-0.7612	0.5794
March	35.00	1.0057	0.0057	0.0000
April	35.00	1.0000	0.0000	0.0000
May	32.80	0.9371	-0.0649	0.0042
June	31.60	0.9634	-0.0373	0.0014
July	25.50	0.8070	-0.2145	0.0460
August	25.50	1.0000	0.0000	0.0000
September	25.50	1.0000	0.0000	0.0000
October	26.10	1.0235	0.0233	0.0005
November	26.10	1.0000	0.0000	0.0000
December	26.10	1.0000	0.0000	0.0000
			-1.0489	**0.6316**
CFC Bank Ltd				
January	19.90			0.0000
February	20.00	1.0050	0.0050	0.0000
March	21.00	1.0500	0.0488	0.0024
April	16.90	0.8048	-0.2172	0.0472
May	17.30	1.0237	0.0234	0.0005
June	16.90	0.9769	-0.0234	0.0005
July	16.00	0.9467	-0.0547	0.0030
August	16.00	1.0000	0.0000	0.0000
September	15.50	0.9688	-0.0317	0.0010
October	15.00	0.9677	-0.0328	0.0011
November	15.00	1.0000	0.0000	0.0000
December	15.60	1.0400	0.0392	0.0015
			-0.2434	**0.0573**
Diamond Trust Bank Kenya Ltd				
January	22.20			0.0000
February	22.50	1.0135	0.0134	0.0002
March	22.10	0.9822	-0.0179	0.0003
April	20.50	0.9276	-0.0752	0.0056
May	22.20	1.0829	0.0797	0.0063
June	22.00	0.9910	-0.0090	0.0001
July	20.00	0.9091	-0.0953	0.0091
August	18.60	0.9300	-0.0726	0.0053
September	20.00	1.0753	0.0726	0.0053
October	20.40	1.0200	0.0198	0.0004
November	20.10	0.9853	-0.0148	0.0002
December	21.10	1.0498	0.0486	0.0024
			-0.0508	**0.0352**
Housing Finance Co (K) Ltd				
January	16.60			0.0000
February	16.70	1.0060	0.0060	0.0000
March	18.10	1.0838	0.0805	0.0065
April	15.40	0.8508	-0.1615	0.0261
May	17.30	1.1234	0.1163	0.0135
June	16.00	0.9249	-0.0781	0.0061
July	16.90	1.0563	0.0547	0.0030
August	15.60	0.9231	-0.0800	0.0064
September	13.90	0.8910	-0.1154	0.0133
October	14.20	1.0216	0.0214	0.0005
November	14.20	1.0000	0.0000	0.0000
December	16.30	1.1479	0.1379	0.0190
			-0.0182	**0.0944**
ICDC Investments Co Ltd				
January	48.70			0.0000
February	41.50	0.8522	-0.1600	0.0256
March	35.70	0.8602	-0.1505	0.0227

[illegible]	35.10	0.9832	-0.0169	0.0003
[illegible]	38.20	1.0883	0.0846	0.0072
[illegible]	39.10	1.0236	0.0233	0.0005
[illegible]	37.80	0.9668	-0.0338	0.0011
August	35.70	0.9444	-0.0572	0.0033
September	35.00	0.9804	-0.0198	0.0004
October	33.00	0.9429	-0.0588	0.0035
November	32.60	0.9879	-0.0122	0.0001
December	41.80	1.2822	0.2486	0.0618
			-0.1528	**0.1265**
Jubilee Insurance Co Ltd				
January	33.90			0.0000
February	36.20	1.0678	0.0656	0.0043
March	37.40	1.0331	0.0326	0.0011
April	37.50	1.0027	0.0027	0.0000
May	33.20	0.8853	-0.1218	0.0148
June	30.20	0.9096	-0.0947	0.0090
July	31.00	1.0265	0.0261	0.0007
August	30.00	0.9677	-0.0328	0.0011
September	30.00	1.0000	0.0000	0.0000
October	30.00	1.0000	0.0000	0.0000
November	28.70	0.9567	-0.0443	0.0020
December	30.30	1.0557	0.0543	0.0029
			-0.1123	**0.0358**
Kenya Commercial Bank Ltd				
January	82.30			0.0000
February	81.10	0.9854	-0.0147	0.0002
March	68.80	0.8483	-0.1645	0.0271
April	70.00	1.0174	0.0173	0.0003
May	70.90	1.0129	0.0128	0.0002
June	70.00	0.9873	-0.0128	0.0002
July	70.60	1.0086	0.0085	0.0001
August	69.60	0.9858	-0.0143	0.0002
September	62.50	0.8980	-0.1076	0.0116
October	58.40	0.9344	-0.0679	0.0046
November	55.40	0.9486	-0.0527	0.0028
December	61.40	1.1083	0.1028	0.0106
			-0.2930	**0.0577**
National Bank of Kenya Ltd				
January	12.50			0.0000
February	12.80	1.0240	0.0237	0.0006
March	10.40	0.8125	-0.2076	0.0431
April	10.20	0.9808	-0.0194	0.0004
May	10.10	0.9902	-0.0099	0.0001
June	12.80	1.2673	0.2369	0.0561
July	9.80	0.7656	-0.2671	0.0713
August	9.00	0.9184	-0.0852	0.0073
September	8.90	0.9889	-0.0112	0.0001
October	8.00	0.8989	-0.1066	0.0114
November	6.30	0.7875	-0.2389	0.0571
December	8.60	1.3651	0.3112	0.0969
			-0.3740	**0.3443**
NIC Bank Ltd				
January	41.00			0.0000
February	42.30	1.0317	0.0312	0.0010
March	38.10	0.9007	-0.1046	0.0109
April	28.60	0.7507	-0.2868	0.0823
May	34.00	1.1888	0.1730	0.0299
June	33.10	0.9735	-0.0268	0.0007
July	35.30	1.0665	0.0643	0.0041
August	26.20	0.7422	-0.2981	0.0889
September	26.50	1.0115	0.0114	0.0001
October	26.60	1.0038	0.0038	0.0000
November	23.30	0.8759	-0.1325	0.0175
December	28.90	1.2403	0.2154	0.0464
			-0.3497	**0.2819**
Pan Africa Insurance Ltd				
January	24.40			0.0000
February	23.30	0.9549	-0.0461	0.0021
March	22.70	0.9742	-0.0261	0.0007
April	20.00	0.8811	-0.1266	0.0160
May	19.90	0.9950	-0.0050	0.0000
June	20.00	1.0050	0.0050	0.0000
July	20.00	1.0000	0.0000	0.0000
August	19.30	0.9650	-0.0356	0.0013
September	18.30	0.9482	-0.0532	0.0028
October	16.00	0.8743	-0.1343	0.0180
November	16.50	1.0313	0.0308	0.0009
December	16.70	1.0121	0.0120	0.0001

			-0.3792	**0.0421**

dard Chartered Bank Ltd

	47.40			0.0000
uary	41.20	0.8692	-0.1402	0.0197
ruary	43.30	1.0510	0.0497	0.0025
rch	39.40	0.9099	-0.0944	0.0089
il	42.60	1.0812	0.0781	0.0061
y	42.10	0.9883	-0.0118	0.0001
e	40.00	0.9501	-0.0512	0.0026
y	39.70	0.9925	-0.0075	0.0001
gust	39.00	0.9824	-0.0178	0.0003
tember	38.90	0.9974	-0.0026	0.0000
tober	40.20	1.0334	0.0329	0.0011
vember	51.70	1.2861	0.2516	0.0633
cember			**0.0868**	**0.1046**

...ining Ltd	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1	U1*U1
	9.50			0.0000
	9.50	1.0000	0.0000	0.0000
	9.50	1.0000	0.0000	0.0000
	6.90	0.7263	-0.3198	0.1023
	7.60	1.1014	0.0966	0.0093
	9.00	1.1842	0.1691	0.0286
	6.80	0.7556	-0.2803	0.0786
	6.50	0.9559	-0.0451	0.0020
	6.30	0.9692	-0.0313	0.0010
	6.40	1.0159	0.0157	0.0002
	6.00	0.9375	-0.0645	0.0042
	6.20	1.0333	0.0328	0.0011
			-0.4267	**0.2272**
...ement Ltd				
	40.00			0.0000
	36.00	0.9000	-0.1054	0.0111
	39.90	1.1083	0.1029	0.0106
	33.30	0.8346	-0.1808	0.0327
	35.00	1.0511	0.0498	0.0025
	35.10	1.0029	0.0029	0.0000
	29.50	0.8405	-0.1738	0.0302
	27.90	0.9458	-0.0558	0.0031
	28.00	1.0036	0.0036	0.0000
	27.70	0.9893	-0.0108	0.0001
	26.10	0.9422	-0.0595	0.0035
	36.00	1.3793	0.3216	0.1034
			-0.1054	**0.1973**
...erican Tobacco Ltd				
	65.00			0.0000
	69.30	1.0662	0.0641	0.0041
	69.00	0.9957	-0.0043	0.0000
	68.00	0.9855	-0.0146	0.0002
	66.20	0.9735	-0.0268	0.0007
	67.50	1.0196	0.0194	0.0004
	70.00	1.0370	0.0364	0.0013
	68.00	0.9714	-0.0290	0.0008
...mber	70.00	1.0294	0.0290	0.0008
...ber	71.00	1.0143	0.0142	0.0002
...mber	71.10	1.0014	0.0014	0.0000
...mber	71.20	1.0014	0.0014	0.0000
			0.0911	**0.0086**
...Gases Ltd				
...ary	40.00			0.0000
...uary	36.00	0.9000	-0.1054	0.0111
...n	39.90	1.1083	0.1029	0.0106
	33.30	0.8346	-0.1808	0.0327
	35.00	1.0511	0.0498	0.0025
	35.10	1.0029	0.0029	0.0000
	29.50	0.8405	-0.1738	0.0302
...ust	27.90	0.9458	-0.0558	0.0031
...mber	28.00	1.0036	0.0036	0.0000
...ber	27.70	0.9893	-0.0108	0.0001
...mber	26.10	0.9422	-0.0595	0.0035
...mber	36.00	1.3793	0.3216	0.1034
			-0.1054	**0.1973**
...acid Investments Ltd				
...uary	50.70			0.0000
...uary	50.30	0.9921	-0.0079	0.0001
...ch	44.90	0.8926	-0.1136	0.0129
...l	44.30	0.9866	-0.0135	0.0002
...e	44.90	1.0135	0.0135	0.0002
...e	44.90	1.0000	0.0000	0.0000
...y	45.00	1.0022	0.0022	0.0000
...ust	47.70	1.0600	0.0583	0.0034
...ember	50.60	1.0608	0.0590	0.0035
...ber	55.10	1.0889	0.0852	0.0073
...ember	55.20	1.0018	0.0018	0.0000
...ember	74.20	1.3442	0.2958	0.0875
			0.3808	**0.1150**
...own Berger Ltd				
...uary	12.10			0.0000
...ruary	13.10	1.0826	0.0794	0.0063
...rch	10.00	0.7634	-0.2700	0.0729
...pril	9.90	0.9900	-0.0101	0.0001
...ay	9.50	0.9596	-0.0412	0.0017

...mputation of monthly returns-Industrial and Allied sector-1998

	9.40	0.9895	-0.0106	0.0001
	9.50	1.0106	0.0106	0.0001
	9.00	0.9474	-0.0541	0.0029
	10.00	1.1111	0.1054	0.0111
	7.50	0.7500	-0.2877	0.0828
	8.40	1.1200	0.1133	0.0128
	8.10	0.9643	-0.0364	0.0013
			-0.4013	**0.1922**
Kenya Ltd				
	20.70			0.0000
	20.00	0.9662	-0.0344	0.0012
	19.40	0.9700	-0.0305	0.0009
	19.20	0.9897	-0.0104	0.0001
	17.00	0.8854	-0.1217	0.0148
	30.80	1.8118	0.5943	0.3532
	28.00	0.9091	-0.0953	0.0091
	26.20	0.9357	-0.0664	0.0044
	20.00	0.7634	-0.2700	0.0729
	17.60	0.8800	-0.1278	0.0163
	18.20	1.0341	0.0335	0.0011
	18.50	1.0165	0.0163	0.0003
			-0.1124	**0.4744**
Sales Ltd				
	29.90			0.0000
	29.00	0.9699	-0.0306	0.0009
	22.50	0.7759	-0.2538	0.0644
	24.00	1.0667	0.0645	0.0042
	24.20	1.0083	0.0083	0.0001
	22.10	0.9132	-0.0908	0.0082
	20.00	0.9050	-0.0998	0.0100
	19.50	0.9750	-0.0253	0.0006
	20.00	1.0256	0.0253	0.0006
	19.20	0.9600	-0.0408	0.0017
	19.20	1.0000	0.0000	0.0000
	20.00	1.0417	0.0408	0.0017
			-0.4021	**0.0924**
Packaging Ltd				
	47.30			0.0000
	35.90	0.7590	-0.2758	0.0761
	32.90	0.9164	-0.0873	0.0076
	33.30	1.0122	0.0121	0.0001
	28.30	0.8498	-0.1627	0.0265
	20.00	0.7067	-0.3471	0.1205
	19.70	0.9850	-0.0151	0.0002
	19.50	0.9898	-0.0102	0.0001
	19.80	1.0154	0.0153	0.0002
	16.20	0.8182	-0.2007	0.0403
	15.80	0.9753	-0.0250	0.0006
	15.60	0.9873	-0.0127	0.0002
			-1.1092	**0.2724**
Portland Cement Ltd				
	30.00			0.0000
	29.90	0.9967	-0.0033	0.0000
	25.00	0.8361	-0.1790	0.0320
	22.00	0.8800	-0.1278	0.0163
	20.00	0.9091	-0.0953	0.0091
	22.10	1.1050	0.0998	0.0100
	20.10	0.9095	-0.0949	0.0090
	20.00	0.9950	-0.0050	0.0000
	19.30	0.9650	-0.0356	0.0013
	18.20	0.9430	-0.0587	0.0034
	17.90	0.9835	-0.0166	0.0003
	17.60	0.9832	-0.0169	0.0003
			-0.5333	**0.0817**
Firestone East Africa Ltd				
	19.80			0.0000
	23.00	1.1616	0.1498	0.0224
	19.70	0.8565	-0.1549	0.0240
	17.20	0.8731	-0.1357	0.0184
	17.50	1.0174	0.0173	0.0003
	17.10	0.9771	-0.0231	0.0005
	18.10	1.0585	0.0568	0.0032
	16.90	0.9337	-0.0686	0.0047
	16.20	0.9586	-0.0423	0.0018
	15.30	0.9444	-0.0572	0.0033
	15.10	0.9869	-0.0132	0.0002
	16.10	1.0662	0.0641	0.0041
			-0.2069	**0.0830**
East Africa Breweries Ltd				
	51.00			0.0000

	50.60	0.9922	-0.0079	0.0001
	50.90	1.0059	0.0059	0.0000
	48.30	0.9489	-0.0524	0.0027
	50.70	1.0497	0.0485	0.0024
	54.80	1.0809	0.0778	0.0060
	56.80	1.0365	0.0358	0.0013
	56.00	0.9859	-0.0142	0.0002
	52.50	0.9375	-0.0645	0.0042
	46.40	0.8838	-0.1235	0.0153
	51.20	1.1034	0.0984	0.0097
	68.80	1.3438	0.2955	0.0873
			0.2994	**0.1291**
...ational Mills Ltd				
	19.80			0.0000
	17.70	0.8939	-0.1121	0.0126
	25.20	1.4237	0.3533	0.1248
	25.00	0.9921	-0.0080	0.0001
	28.30	1.1320	0.1240	0.0154
	24.30	0.8587	-0.1524	0.0232
	20.20	0.8313	-0.1848	0.0341
	20.10	0.9950	-0.0050	0.0000
	19.70	0.9801	-0.0201	0.0004
	17.10	0.8680	-0.1415	0.0200
	13.60	0.7953	-0.2290	0.0524
	16.30	1.1985	0.1811	0.0328
			-0.1945	**0.3159**
...n Oil Co Ltd				
	64.10			0.0000
	67.30	1.0499	0.0487	0.0024
	66.40	0.9866	-0.0135	0.0002
	55.00	0.8283	-0.1884	0.0355
	52.40	0.9527	-0.0484	0.0023
	56.10	1.0706	0.0682	0.0047
	58.00	1.0339	0.0333	0.0011
	58.00	1.0000	0.0000	0.0000
	58.50	1.0086	0.0086	0.0001
	56.30	0.9624	-0.0383	0.0015
	55.00	0.9769	-0.0234	0.0005
	55.00	1.0000	0.0000	0.0000
			-0.1531	**0.0482**
...a Power & Lighting Ltd				
	124.30			0.0000
	132.80	1.0684	0.0661	0.0044
	121.50	0.9149	-0.0889	0.0079
	111.60	0.9185	-0.0850	0.0072
	120.80	1.0824	0.0792	0.0063
	129.60	1.0728	0.0703	0.0049
	132.80	1.0247	0.0244	0.0006
	130.60	0.9834	-0.0167	0.0003
	120.90	0.9257	-0.0772	0.0060
	127.10	1.0513	0.0500	0.0025
	110.60	0.8702	-0.1391	0.0193
	120.20	1.0868	0.0832	0.0069
			-0.0335	**0.0663**
...ia Kenya Ltd				
	63.50			0.0000
	59.80	0.9417	-0.0600	0.0036
	50.40	0.8428	-0.1710	0.0292
	44.40	0.8810	-0.1268	0.0161
	40.20	0.9054	-0.0994	0.0099
	41.40	1.0299	0.0294	0.0009
	40.50	0.9783	-0.0220	0.0005
	40.90	1.0099	0.0098	0.0001
	37.80	0.9242	-0.0788	0.0062
	36.40	0.9630	-0.0377	0.0014
	34.00	0.9341	-0.0682	0.0047
	44.90	1.3206	0.2781	0.0773
			-0.3466	**0.1499**
...ya Group Ltd				
	22.30			0.0000
	26.20	1.1749	0.1612	0.0260
	56.80	2.1679	0.7738	0.5987
	54.00	0.9507	-0.0506	0.0026
	67.50	1.2500	0.2231	0.0498
	58.80	0.8711	-0.1380	0.0190
	59.80	1.0170	0.0169	0.0003
	55.30	0.9247	-0.0782	0.0061
	52.20	0.9439	-0.0577	0.0033
	37.70	0.7222	-0.3254	0.1059
	36.40	0.9655	-0.0351	0.0012
	47.00	1.2912	0.2556	0.0653
			0.7456	**0.8783**

Bond Kenya Limited	Closing stock price	Price relative	Monthly return	
	Sh	S1/S1-1	U1=ln (S1/S1-1)	U1*U1
	142			0.0000
	141.4	0.9958	-0.0042	0.0000
	143.1	1.0120	0.0120	0.0001
	145.1	1.0140	0.0139	0.0002
	146.1	1.0069	0.0069	0.0000
	146.9	1.0055	0.0055	0.0000
	147.2	1.0020	0.0020	0.0000
	147	0.9986	-0.0014	0.0000
ber	100.2	0.6816	-0.3833	0.1469
	102	1.0180	0.0178	0.0003
ber	103	1.0098	0.0098	0.0001
ber	104	1.0097	0.0097	0.0001
			-0.3114	**0.1478**
ds Limited				
	42.1			0.0000
ary	42.1	1.0000	0.0000	0.0000
	42.1	1.0000	0.0000	0.0000
	42.1	1.0000	0.0000	0.0000
	42.1	1.0000	0.0000	0.0000
	42.1	1.0000	0.0000	0.0000
	42.5	1.0095	0.0095	0.0001
st	24	0.5647	-0.5715	0.3266
mber	27.8	1.1583	0.1470	0.0216
ber	27.8	1.0000	0.0000	0.0000
mber	27.8	1.0000	0.0000	0.0000
mber	26	0.9353	-0.0669	0.0045
			-0.4820	**0.3527**
rge Williamson Kenya Ltd				
uary	143			0.0000
nuary	141.6	0.9902	-0.0098	0.0001
ch	140	0.9887	-0.0114	0.0001
il	141	1.0071	0.0071	0.0001
y	142	1.0071	0.0071	0.0000
e	143	1.0070	0.0070	0.0000
y	140	0.9790	-0.0212	0.0004
gust	140	1.0000	0.0000	0.0000
ptember	115	0.8214	-0.1967	0.0387
tober	110	0.9565	-0.0445	0.0020
vember	96	0.8727	-0.1361	0.0185
cember	92	0.9583	-0.0426	0.0018
			-0.4411	**0.0618**
kuzi Ltd				
anuary	141			0.0000

Computation of monthly returns-Agricultural sector-1999

...ary	145	1.0284	0.0280	0.0008
...h	143	0.9862	-0.0139	0.0002
	117.7	0.8231	-0.1947	0.0379
	120	1.0195	0.0194	0.0004
	120.4	1.0033	0.0033	0.0000
	121	1.0050	0.0050	0.0000
...st	121	1.0000	0.0000	0.0000
...mber	100	0.8264	-0.1906	0.0363
...ber	99.1	0.9910	-0.0090	0.0001
...mber	93.6	0.9445	-0.0571	0.0033
...mber	87	0.9295	-0.0731	0.0053
			-0.4829	**0.0843**
...chorua Tea Co Ltd				
...uary	102			0.0000
...ruary	125	1.2255	0.2033	0.0413
...rch	125	1.0000	0.0000	0.0000
...l	144	1.1520	0.1415	0.0200
...y	150	1.0417	0.0408	0.0017
...e	150	1.0000	0.0000	0.0000
...y	150	1.0000	0.0000	0.0000
...gust	150	1.0000	0.0000	0.0000
...tember	150	1.0000	0.0000	0.0000
...tober	150	1.0000	0.0000	0.0000
...vember	150	1.0000	0.0000	0.0000
...cember	150	1.0000	0.0000	0.0000
			0.3857	**0.0630**
...muru Tea Co Ltd				
...nuary	760			0.0000
...bruary	760	1.0000	0.0000	0.0000
...rch	760	1.0000	0.0000	0.0000
...il	760	1.0000	0.0000	0.0000
...ay	760	1.0000	0.0000	0.0000
...ne	650	0.8553	-0.1563	0.0244
...ly	650	1.0000	0.0000	0.0000
...gust	650	1.0000	0.0000	0.0000
...ptember	650	1.0000	0.0000	0.0000
...tober	650	1.0000	0.0000	0.0000
...vember	650	1.0000	0.0000	0.0000
...ecember	650	1.0000	0.0000	0.0000
			-0.1563	**0.0244**
...ea Vipingo Ltd				
...anuary	6.5			0.0000
...ebruary	6	0.9231	-0.0800	0.0064
...March	5.6	0.9333	-0.0690	0.0048
...April	5.5	0.9821	-0.0180	0.0003
...May	5.5	1.0000	0.0000	0.0000
...June	6	1.0909	0.0870	0.0076
...July	5.6	0.9333	-0.0690	0.0048
...August	5	0.8929	-0.1133	0.0128

ember	5	1.0000	0.0000	0.0000
ber	4.6	0.9200	-0.0834	0.0070
mber	4.7	1.0217	0.0215	0.0005
mber	4.8	1.0213	0.0211	0.0004
			-0.3032	**0.0445**
i Tea & Coffee Ltd				
ary	70			0.0000
uary	60.2	0.8600	-0.1508	0.0227
	59.2	0.9834	-0.0168	0.0003
	57.2	0.9662	-0.0344	0.0012
	51	0.8916	-0.1147	0.0132
	54	1.0588	0.0572	0.0033
	54	1.0000	0.0000	0.0000
ust	55.2	1.0222	0.0220	0.0005
tember	55.5	1.0054	0.0054	0.0000
ober	53.9	0.9712	-0.0293	0.0009
ember	44.1	0.8182	-0.2007	0.0403
ember	44.9	1.0181	0.0180	0.0003
			-0.4441	**0.0826**

PANY

umann & Co Ltd	Closing stock price	Price relative	Monthly return	
	Sh	S1/S1-1	U1=ln (S1/S1-1)	U1*U1
ary	16.9			0.0000
uary	16.9	1.0000	0.0000	0.0000
h	16.9	1.0000	0.0000	0.0000
	16.9	1.0000	0.0000	0.0000
	16.9	1.0000	0.0000	0.0000
e	16.9	1.0000	0.0000	0.0000
	16.9	1.0000	0.0000	0.0000
ust	16.9	1.0000	0.0000	0.0000
ember	16.9	1.0000	0.0000	0.0000
ber	15	0.8876	-0.1193	0.0142
ember	15	1.0000	0.0000	0.0000
ember	14.9	0.9933	-0.0067	0.0000
			-0.1260	**0.0143**
C Holdings Ltd				
uary	33.2			0.0000
ruary	29.1	0.8765	-0.1318	0.0174
rch	28	0.9622	-0.0385	0.0015
il	28	1.0000	0.0000	0.0000
y	28	1.0000	0.0000	0.0000
e	28	1.0000	0.0000	0.0000
y	29.9	1.0679	0.0657	0.0043
ust	30	1.0033	0.0033	0.0000
tember	30	1.0000	0.0000	0.0000
ber	30	1.0000	0.0000	0.0000
vember	30	1.0000	0.0000	0.0000
cember	30	1.0000	0.0000	0.0000
			-0.1014	**0.0232**
r & General (K) Ltd				
nuary	12			0.0000
bruary	12.5	1.0417	0.0408	0.0017
rch	12.8	1.0240	0.0237	0.0006
il	12.8	1.0000	0.0000	0.0000
y	12.5	0.9766	-0.0237	0.0006
ne	10	0.8000	-0.2231	0.0498
y	5	0.5000	-0.6931	0.4805
ugust	5	1.0000	0.0000	0.0000
eptember	5	1.0000	0.0000	0.0000
ctober	10	2.0000	0.6931	0.4805
ovember	9	0.9000	-0.1054	0.0111
ecember	9	1.0000	0.0000	0.0000
			-0.2877	**1.0246**
Express Kenya Ltd				
anuary	39			0.0000

ary	38.8	0.9949	-0.0051	0.0000
	29	0.7474	-0.2911	0.0848
	34	1.1724	0.1591	0.0253
	25.1	0.7382	-0.3035	0.0921
	25.5	1.0159	0.0158	0.0002
	25.5	1.0000	0.0000	0.0000
st	22.2	0.8706	-0.1386	0.0192
mber	18.3	0.8243	-0.1932	0.0373
ber	18.3	1.0000	0.0000	0.0000
mber	18	0.9836	-0.0165	0.0003
mber	18.9	1.0500	0.0488	0.0024
			-0.7244	**0.2616**
ya Airways Ltd				
ary	8.1			0.0000
ruary	7.4	0.9136	-0.0904	0.0082
ch	7.6	1.0270	0.0267	0.0007
	8	1.0526	0.0513	0.0026
	8.1	1.0125	0.0124	0.0002
e	8	0.9877	-0.0124	0.0002
	6.9	0.8625	-0.1479	0.0219
gust	6.2	0.8986	-0.1070	0.0114
tember	5.4	0.8710	-0.1382	0.0191
tober	6	1.1111	0.1054	0.0111
vember	7.7	1.2833	0.2495	0.0622
cember	7.8	1.0130	0.0129	0.0002
			-0.0377	**0.1377**
nhro Motors (EA) Ltd				
nuary	20			0.0000
bruary	22.2	1.1100	0.1044	0.0109
rch	22	0.9910	-0.0090	0.0001
ril	16.2	0.7364	-0.3060	0.0937
ay	16.8	1.0370	0.0364	0.0013
ne	17	1.0119	0.0118	0.0001
ly	17.5	1.0294	0.0290	0.0008
ugust	15	0.8571	-0.1542	0.0238
eptember	15.2	1.0133	0.0132	0.0002
ctober	13.5	0.8882	-0.1186	0.0141
ovember	13.3	0.9852	-0.0149	0.0002
ecember	13.3	1.0000	0.0000	0.0000
			-0.4080	**0.1452**
arshalls (EA) Ltd				
anuary	25.7			0.0000
ebruary	25.7	1.0000	0.0000	0.0000
March	26.1	1.0156	0.0154	0.0002
April	24.3	0.9310	-0.0715	0.0051
May	22	0.9053	-0.0994	0.0099
June	22	1.0000	0.0000	0.0000
July	22	1.0000	0.0000	0.0000
August	25	1.1364	0.1278	0.0163

ember	25	1.0000	0.0000	0.0000
ber	25	1.0000	0.0000	0.0000
mber	23.6	0.9440	-0.0576	0.0033
mber	23.6	1.0000	0.0000	0.0000
			-0.0852	**0.0349**
on Media Group Ltd				
uary	135.2			0.0000
ruary	138.7	1.0259	0.0256	0.0007
ch	135.9	0.9798	-0.0204	0.0004
l	136.9	1.0074	0.0073	0.0001
	132.1	0.9649	-0.0357	0.0013
e	130	0.9841	-0.0160	0.0003
	129.9	0.9992	-0.0008	0.0000
ust	105.1	0.8091	-0.2119	0.0449
tember	107.7	1.0247	0.0244	0.0006
ber	108.6	1.0084	0.0083	0.0001
ember	101.1	0.9309	-0.0716	0.0051
ember	100.4	0.9931	-0.0069	0.0000
			-0.2976	**0.0534**
rl Drycleaners Ltd				
uary	10			0.0000
bruary	10	1.0000	0.0000	0.0000
arch	10	1.0000	0.0000	0.0000
ril	10	1.0000	0.0000	0.0000
ay	10	1.0000	0.0000	0.0000
ne	10	1.0000	0.0000	0.0000
ly	10	1.0000	0.0000	0.0000
gust	10	1.0000	0.0000	0.0000
ptember	3	0.3000	-1.2040	1.4496
tober	3	1.0000	0.0000	0.0000
vember	3	1.0000	0.0000	0.0000
ecember	3	1.0000	0.0000	0.0000
			-1.2040	**1.4496**
Standard Newspapers Ltd				
anuary	25.5			0.0000
ebruary	24	0.9412	-0.0606	0.0037
larch	10.5	0.4375	-0.8267	0.6834
pril	19.9	1.8952	0.6393	0.4088
ay	19	0.9548	-0.0463	0.0021
une	14	0.7368	-0.3054	0.0933
uly	12	0.8571	-0.1542	0.0238
August	12	1.0000	0.0000	0.0000
September	11.1	0.9250	-0.0780	0.0061
October	10.2	0.9189	-0.0846	0.0071
November	10	0.9804	-0.0198	0.0004
December	9.9	0.9900	-0.0101	0.0001
			-0.9461	**1.2287**
Tourism Promotion Services (Serena)				

ary	12.8			0.0000
uary	12.5	0.9766	-0.0237	0.0006
h	12.6	1.0080	0.0080	0.0001
	13.5	1.0714	0.0690	0.0048
	13.5	1.0000	0.0000	0.0000
e	13.2	0.9778	-0.0225	0.0005
	14	1.0606	0.0588	0.0035
ust	14.1	1.0071	0.0071	0.0001
tember	16.1	1.1418	0.1326	0.0176
ber	16	0.9938	-0.0062	0.0000
mber	16.1	1.0063	0.0062	0.0000
mber	16.1	1.0000	0.0000	0.0000
			0.2294	**0.0271**
umi Supermarkets Ltd				
uary	44			0.0000
ruary	48.5	1.1023	0.0974	0.0095
rch	50.9	1.0495	0.0483	0.0023
il	48	0.9430	-0.0587	0.0034
y	48.1	1.0021	0.0021	0.0000
e	48.2	1.0021	0.0021	0.0000
y	50.4	1.0456	0.0446	0.0020
gust	51.1	1.0139	0.0138	0.0002
tember	49.1	0.9609	-0.0399	0.0016
ober	41.6	0.8473	-0.1658	0.0275
vember	36.8	0.8846	-0.1226	0.0150
cember	39.3	1.0679	0.0657	0.0043
			-0.1130	**0.0659**

NANCE AND INVESTMENT SECTOR 1999

COMPANY

Barclays Bank Ltd	Closing stock price	Price relative	Monthly return	
	Sh	S1/S1-1	U1=ln (S1/S1-	U1*U1
January	120.2			0.0000
February	122.3	1.0175	0.0173	0.0003
March	108.6	0.8880	-0.1188	0.0141
April	106.1	0.9770	-0.0233	0.0005
May	109.3	1.0302	0.0297	0.0009
June	109.6	1.0027	0.0027	0.0000
July	118.3	1.0794	0.0764	0.0058
August	108.5	0.9172	-0.0865	0.0075
September	98.6	0.9088	-0.0957	0.0092
October	103	1.0446	0.0437	0.0019
November	103.2	1.0019	0.0019	0.0000
December	103.1	0.9990	-0.0010	0.0000
			-0.1535	**0.0402**
City Trust Ltd				
January	26.8			0.0000
February	26.8	1.0000	0.0000	0.0000
March	26.1	0.9739	-0.0265	0.0007
April	24.5	0.9387	-0.0633	0.0040
May	22.5	0.9184	-0.0852	0.0073
June	22.5	1.0000	0.0000	0.0000
July	23.5	1.0444	0.0435	0.0019
August	23	0.9787	-0.0215	0.0005
September	21.3	0.9261	-0.0768	0.0059
October	21.3	1.0000	0.0000	0.0000
November	22.1	1.0376	0.0369	0.0014
December	22.1	1.0000	0.0000	0.0000
			-0.1928	**0.0216**
CFC Bank Ltd				
January	20.1			0.0000
February	18.3	0.9104	-0.0938	0.0088
March	14.1	0.7705	-0.2607	0.0680
April	14.3	1.0142	0.0141	0.0002
May	14	0.9790	-0.0212	0.0004
June	15.1	1.0786	0.0756	0.0057
July	15.1	1.0000	0.0000	0.0000
August	14.6	0.9669	-0.0337	0.0011
September	15	1.0274	0.0270	0.0007
October	17.9	1.1933	0.1768	0.0312
November	14	0.7821	-0.2457	0.0604
December	14.3	1.0214	0.0212	0.0004
			-0.3405	**0.1771**
Diamond Trust Bank Kenya Ltd				

anuary	25			0.0000
ebruary	26	1.0400	0.0392	0.0015
arch	25	0.9615	-0.0392	0.0015
pril	25	1.0000	0.0000	0.0000
ay	23.2	0.9280	-0.0747	0.0056
une	23.9	1.0302	0.0297	0.0009
uly	23.9	1.0000	0.0000	0.0000
ugust	21	0.8787	-0.1294	0.0167
eptember	20.8	0.9905	-0.0096	0.0001
ctober	23.5	1.1298	0.1220	0.0149
ovember	23.1	0.9830	-0.0172	0.0003
ecember	26	1.1255	0.1183	0.0140
			0.0392	**0.0555**

Housing Finance Co (K) Ltd

January	14.6			0.0000
February	14.6	1.0000	0.0000	0.0000
March	14.2	0.9726	-0.0278	0.0008
April	13.4	0.9437	-0.0580	0.0034
May	12.9	0.9627	-0.0380	0.0014
June	13.1	1.0155	0.0154	0.0002
July	12.6	0.9618	-0.0389	0.0015
August	11.9	0.9444	-0.0572	0.0033
September	9.3	0.7815	-0.2465	0.0608
October	10	1.0753	0.0726	0.0053
November	9.6	0.9600	-0.0408	0.0017
December	10.3	1.0729	0.0704	0.0050
			-0.3489	**0.0833**

ICDC Investments Co Ltd

January	42			0.0000
February	43.3	1.0310	0.0305	0.0009
March	45.3	1.0462	0.0452	0.0020
April	48	1.0596	0.0579	0.0034
May	48	1.0000	0.0000	0.0000
June	48.3	1.0063	0.0062	0.0000
July	50.3	1.0414	0.0406	0.0016
August	51.3	1.0199	0.0197	0.0004
September	50.4	0.9825	-0.0177	0.0003
October	50.1	0.9940	-0.0060	0.0000
November	50	0.9980	-0.0020	0.0000
December	51	1.0200	0.0198	0.0004
			0.1942	**0.0091**

Jubilee Insurance Co Ltd

January	33.9			0.0000
February	32.4	0.9558	-0.0453	0.0020
March	33	1.0185	0.0183	0.0003
April	33	1.0000	0.0000	0.0000

May	33	1.0000	0.0000	0.0000
June	28.4	0.8606	-0.1501	0.0225
July	30.1	1.0599	0.0581	0.0034
August	29.7	0.9867	-0.0134	0.0002
September	28.7	0.9663	-0.0342	0.0012
October	25.1	0.8746	-0.1340	0.0180
November	25.9	1.0319	0.0314	0.0010
December	23	0.8880	-0.1187	0.0141
			-0.3879	**0.0627**
Kenya Commercial Bank Ltd				
January	63.4			0.0000
February	61	0.9621	-0.0386	0.0015
March	49.6	0.8131	-0.2069	0.0428
April	44.5	0.8972	-0.1085	0.0118
May	44	0.9888	-0.0113	0.0001
June	43.9	0.9977	-0.0023	0.0000
July	44.1	1.0046	0.0045	0.0000
August	39.4	0.8934	-0.1127	0.0127
September	35.1	0.8909	-0.1156	0.0134
October	35	0.9972	-0.0029	0.0000
November	33.5	0.9571	-0.0438	0.0019
December	31.4	0.9373	-0.0647	0.0042
			-0.7027	**0.0884**
National Bank of Kenya Ltd				
January	8.5			0.0000
February	7.4	0.8706	-0.1386	0.0192
March	6.4	0.8649	-0.1452	0.0211
April	6	0.9375	-0.0645	0.0042
May	5.9	0.9833	-0.0168	0.0003
June	6.3	1.0678	0.0656	0.0043
July	5.6	0.8889	-0.1178	0.0139
August	5.1	0.9107	-0.0935	0.0087
September	5.1	1.0000	0.0000	0.0000
October	4.5	0.8824	-0.1252	0.0157
November	5	1.1111	0.1054	0.0111
December	5	1.0000	0.0000	0.0000
			-0.5306	**0.0984**
NIC Bank Ltd				
January	26.5			0.0000
February	28.4	1.0717	0.0692	0.0048
March	28.7	1.0106	0.0105	0.0001
April	27.6	0.9617	-0.0391	0.0015
May	29.5	1.0688	0.0666	0.0044
June	28.7	0.9729	-0.0275	0.0008
July	28.3	0.9861	-0.0140	0.0002
August	28.8	1.0177	0.0175	0.0003
September	28.3	0.9826	-0.0175	0.0003

October	28.9	1.0212	0.0210	0.0004
November	26.8	0.9273	-0.0754	0.0057
December	26.9	1.0037	0.0037	0.0000
			0.0150	**0.0186**
Pan Africa Insurance Ltd				
January	16.2			0.0000
February	16.7	1.0309	0.0304	0.0009
March	16.7	1.0000	0.0000	0.0000
April	16.7	1.0000	0.0000	0.0000
May	22.7	1.3593	0.3070	0.0942
June	24	1.0573	0.0557	0.0031
July	24	1.0000	0.0000	0.0000
August	24.3	1.0125	0.0124	0.0002
September	24.1	0.9918	-0.0083	0.0001
October	52	2.1577	0.7690	0.5914
November	27	0.5192	-0.6554	0.4296
December	26.9	0.9963	-0.0037	0.0000
			0.5071	**1.1195**
Standard Chartered Bank Ltd				
January	45.2			0.0000
February	47.1	1.0420	0.0412	0.0017
March	47.7	1.0127	0.0127	0.0002
April	45.8	0.9602	-0.0406	0.0017
May	47.8	1.0437	0.0427	0.0018
June	48.9	1.0230	0.0228	0.0005
July	53.7	1.0982	0.0936	0.0088
August	55.2	1.0279	0.0275	0.0008
September	54.6	0.9891	-0.0109	0.0001
October	58.2	1.0659	0.0639	0.0041
November	59.7	1.0258	0.0254	0.0006
December	55.8	0.9347	-0.0676	0.0046
			0.2107	**0.0248**

STRIAL AND ALLIED SECTOR 1999

PANY

River Mining Ltd	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1	U1*U1
ary	6			0.0000
ary	6.3	1.0500	0.0488	0.0024
h	5.1	0.8095	-0.2113	0.0447
	6	1.1765	0.1625	0.0264
	5.6	0.9333	-0.0690	0.0048
e	5.7	1.0179	0.0177	0.0003
	6.1	1.0702	0.0678	0.0046
ust	5.5	0.9016	-0.1035	0.0107
mber	5.6	1.0182	0.0180	0.0003
ber	6	1.0714	0.0690	0.0048
mber	5	0.8333	-0.1823	0.0332
mber	5.9	1.1800	0.1655	0.0274
			-0.0168	**0.1596**
mburi Cement Ltd				
uary	36.9			0.0000
ruary	30.2	0.8184	-0.2004	0.0401
rch	30	0.9934	-0.0066	0.0000
il	25.8	0.8600	-0.1508	0.0227
y	24.8	0.9612	-0.0395	0.0016
e	26	1.0484	0.0473	0.0022
y	30.3	1.1654	0.1531	0.0234
gust	29.1	0.9604	-0.0404	0.0016
tember	26.6	0.9141	-0.0898	0.0081
tober	26.3	0.9887	-0.0113	0.0001
vember	26	0.9886	-0.0115	0.0001
cember	26.3	1.0115	0.0115	0.0001
			-0.3386	**0.1003**
itish American Tobacco Ltd				
nuary	75.6			0.0000
bruary	61.4	0.8122	-0.2080	0.0433
arch	71	1.1564	0.1453	0.0211
ril	69.7	0.9817	-0.0185	0.0003
ay	71	1.0187	0.0185	0.0003
ne	71.5	1.0070	0.0070	0.0000
ly	71	0.9930	-0.0070	0.0000
ugust	70.1	0.9873	-0.0128	0.0002
eptember	70	0.9986	-0.0014	0.0000
ctober	68	0.9714	-0.0290	0.0008
lovember	68	1.0000	0.0000	0.0000
ecember	64.5	0.9485	-0.0528	0.0028
			-0.1588	**0.0690**
B O C Gases Ltd				
January	36.9			0.0000

ary	30.2	0.8184	-0.2004	0.0401
	30	0.9934	-0.0066	0.0000
	25.8	0.8600	-0.1508	0.0227
	24.8	0.9612	-0.0395	0.0016
	26	1.0484	0.0473	0.0022
	30.3	1.1654	0.1531	0.0234
st	29.1	0.9604	-0.0404	0.0016
ember	26.6	0.9141	-0.0898	0.0081
ber	26.3	0.9887	-0.0113	0.0001
mber	26	0.9886	-0.0115	0.0001
mber	26.3	1.0115	0.0115	0.0001
			-0.3386	**0.1003**
acid Investments Ltd				
ary	72.5			0.0000
uary	82	1.1310	0.1231	0.0152
h	82.9	1.0110	0.0109	0.0001
	95.8	1.1556	0.1446	0.0209
	95.6	0.9979	-0.0021	0.0000
e	95.6	1.0000	0.0000	0.0000
	79.7	0.8337	-0.1819	0.0331
ust	79.5	0.9975	-0.0025	0.0000
tember	84.5	1.0629	0.0610	0.0037
ber	83.9	0.9929	-0.0071	0.0001
vember	79.8	0.9511	-0.0501	0.0025
cember	76	0.9524	-0.0488	0.0024
			0.0471	**0.0780**
own Berger Ltd				
nuary	10			0.0000
bruary	7	0.7000	-0.3567	0.1272
rch	8.5	1.2143	0.1942	0.0377
il	8.2	0.9647	-0.0359	0.0013
y	8.6	1.0488	0.0476	0.0023
ne	8.5	0.9884	-0.0117	0.0001
y	9.1	1.0706	0.0682	0.0047
gust	13.8	1.5165	0.4164	0.1734
ptember	12	0.8696	-0.1398	0.0195
tober	13.4	1.1167	0.1103	0.0122
vember	10.7	0.7985	-0.2250	0.0506
cember	10	0.9346	-0.0677	0.0046
			0.0000	**0.4336**
unlop Kenya Ltd				
anuary	27.6			0.0000
ebruary	24.9	0.9022	-0.1029	0.0106
March	18.9	0.7590	-0.2757	0.0760
pril	17	0.8995	-0.1059	0.0112
May	15.8	0.9294	-0.0732	0.0054
June	15	0.9494	-0.0520	0.0027
July	15	1.0000	0.0000	0.0000
August	14	0.9333	-0.0690	0.0048

mber	13.8	0.9857	-0.0144	0.0002
er	12.9	0.9348	-0.0674	0.0045
mber	8	0.6202	-0.4778	0.2283
mber	9.8	1.2250	0.2029	0.0412
			-1.0354	**0.3849**

bles Ltd

ary	30.1			0.0000
ary	16	0.5316	-0.6319	0.3993
h	19	1.1875	0.1719	0.0295
	19.5	1.0263	0.0260	0.0007
	19	0.9744	-0.0260	0.0007
e	19.6	1.0316	0.0311	0.0010
	19.6	1.0000	0.0000	0.0000
ust	19.6	1.0000	0.0000	0.0000
ember	18.7	0.9541	-0.0470	0.0022
ber	18.7	1.0000	0.0000	0.0000
ember	16	0.8556	-0.1559	0.0243
ember	16	1.0000	0.0000	0.0000
			-0.6319	**0.4577**

Packaging Ltd

uary	19.6			0.0000
ruary	18.7	0.9541	-0.0470	0.0022
rch	18.5	0.9893	-0.0108	0.0001
il	18	0.9730	-0.0274	0.0008
y	18	1.0000	0.0000	0.0000
e	14	0.7778	-0.2513	0.0632
y	13.7	0.9786	-0.0217	0.0005
gust	14	1.0219	0.0217	0.0005
tember	10	0.7143	-0.3365	0.1132
tober	10	1.0000	0.0000	0.0000
vember	10.3	1.0300	0.0296	0.0009
cember	7	0.6796	-0.3862	0.1492
			-1.0296	**0.3304**

A Portland Cement Ltd

nuary	20			0.0000
bruary	20.2	1.0100	0.0100	0.0001
arch	20	0.9901	-0.0100	0.0001
ril	9	0.4500	-0.7985	0.6376
ay	14.4	1.6000	0.4700	0.2209
ne	14.5	1.0069	0.0069	0.0000
ly	14.4	0.9931	-0.0069	0.0000
ugust	14.1	0.9792	-0.0211	0.0004
eptember	11.5	0.8156	-0.2038	0.0415
October	8.6	0.7478	-0.2906	0.0844
ovember	11.7	1.3605	0.3078	0.0948
ecember	11.2	0.9573	-0.0437	0.0019
			-0.5798	**1.0819**

Firestone East Africa Ltd

	20			0.0000
	18.9	0.9450	-0.0566	0.0032
	17	0.8995	-0.1059	0.0112
	17	1.0000	0.0000	0.0000
	17	1.0000	0.0000	0.0000
	16.5	0.9706	-0.0299	0.0009
	17	1.0303	0.0299	0.0009
	15.5	0.9118	-0.0924	0.0085
mber	13.8	0.8903	-0.1162	0.0135
	14.3	1.0362	0.0356	0.0013
mber	14.1	0.9860	-0.0141	0.0002
mber	16	1.1348	0.1264	0.0160
			-0.2231	**0.0557**
Africa Breweries Ltd				
ary	59.2			0.0000
uary	65.2	1.1014	0.0965	0.0093
	70.4	1.0798	0.0767	0.0059
	76.9	1.0923	0.0883	0.0078
	78.3	1.0182	0.0180	0.0003
	77.1	0.9847	-0.0154	0.0002
	79.8	1.0350	0.0344	0.0012
ust	85	1.0652	0.0631	0.0040
ember	83.8	0.9859	-0.0142	0.0002
ber	77.9	0.9296	-0.0730	0.0053
ember	73.8	0.9474	-0.0541	0.0029
ember	69.9	0.9472	-0.0543	0.0029
			0.1661	**0.0401**
ya National Mills Ltd				
uary	20.3			0.0000
ruary	17.5	0.8621	-0.1484	0.0220
ch	14	0.8000	-0.2231	0.0498
l	13	0.9286	-0.0741	0.0055
	13.9	1.0692	0.0669	0.0045
e	14	1.0072	0.0072	0.0001
	13.8	0.9857	-0.0144	0.0002
gust	7.5	0.5435	-0.6098	0.3718
tember	10	1.3333	0.2877	0.0828
ober	8.2	0.8200	-0.1985	0.0394
vember	9.4	1.1463	0.1366	0.0187
cember	9.5	1.0106	0.0106	0.0001
			-0.7593	**0.5948**
nya Oil Co Ltd				
nuary	60.8			0.0000
bruary	56	0.9211	-0.0822	0.0068
arch	59.3	1.0589	0.0573	0.0033
ril	60	1.0118	0.0117	0.0001
ay	76	1.2667	0.2364	0.0559
ne	76	1.0000	0.0000	0.0000
y	70.4	0.9263	-0.0765	0.0059

mputation of monthly returns- Industrial and Allied sector-1999

	64	0.9091	-0.0953	0.0091
ber	55	0.8594	-0.1515	0.0230
	55	1.0000	0.0000	0.0000
ber	70	1.2727	0.2412	0.0582
ber	67.8	0.9686	-0.0319	0.0010
			0.1090	**0.1631**
Power & Lighting Ltd				
ry	129.8			0.0000
ary	128.8	0.9923	-0.0077	0.0001
	115	0.8929	-0.1133	0.0128
	117.9	1.0252	0.0249	0.0006
	113	0.9584	-0.0424	0.0018
	111.3	0.9850	-0.0152	0.0002
	111	0.9973	-0.0027	0.0000
st	106.3	0.9577	-0.0433	0.0019
mber	97.3	0.9153	-0.0885	0.0078
ber	82.5	0.8479	-0.1650	0.0272
mber	81.4	0.9867	-0.0134	0.0002
mber	92.5	1.1364	0.1278	0.0163
			-0.3388	**0.0690**
l Kenya Ltd				
uary	50.3			0.0000
ruary	42	0.8350	-0.1803	0.0325
ch	41.5	0.9881	-0.0120	0.0001
	45.9	1.1060	0.1008	0.0102
y	46.9	1.0218	0.0216	0.0005
e	47	1.0021	0.0021	0.0000
y	50	1.0638	0.0619	0.0038
gust	52	1.0400	0.0392	0.0015
tember	48	0.9231	-0.0800	0.0064
tober	47	0.9792	-0.0211	0.0004
vember	48	1.0213	0.0211	0.0004
cember	48	1.0000	0.0000	0.0000
			-0.0468	**0.0559**
ga Group Ltd				
nuary	45.5			0.0000
bruary	42.2	0.9275	-0.0753	0.0057
rch	34.9	0.8270	-0.1899	0.0361
ril	33.5	0.9599	-0.0409	0.0017
ay	27.2	0.8119	-0.2083	0.0434
ne	31.1	1.1434	0.1340	0.0180
ly	25.1	0.8071	-0.2143	0.0459
ugust	22.1	0.8805	-0.1273	0.0162
September	19	0.8597	-0.1511	0.0228
October	12	0.6316	-0.4595	0.2112
November	26	2.1667	0.7732	0.5978
December	26	1.0000	0.0000	0.0000
			-0.5596	**0.9988**

CULTURAL SECTOR 2000

PANY

e Bond Kenya Limited	*Closing stock price* Sh	*Price relative* S1/S1-1	*Monthly return* U1=ln (S1/S1-1)	U1*U1
ary	104			
ary	104	1.0000	0.0000	0.0000
h	88	0.8462	-0.1671	0.0279
	78	0.8864	-0.1206	0.0146
	76	0.9744	-0.0260	0.0007
e	74	0.9737	-0.0267	0.0007
	74	1.0000	0.0000	0.0000
ust	73.5	0.9932	-0.0068	0.0000
ember	82	1.1156	0.1094	0.0120
ber	92	1.1220	0.1151	0.0132
ember	97	1.0543	0.0529	0.0028
ember	97	1.0000	0.0000	0.0000
			-0.0697	**0.0719**
gads Limited				
uary	26			
ruary	25	0.9615	-0.0392	0.0015
rch	25	1.0000	0.0000	0.0000
il	25	1.0000	0.0000	0.0000
y	25	1.0000	0.0000	0.0000
ne	25	1.0000	0.0000	0.0000
y	24.5	0.9800	-0.0202	0.0004
gust	24.5	1.0000	0.0000	0.0000
ptember	24.5	1.0000	0.0000	0.0000
tober	20	0.8163	-0.2029	0.0412
vember	20.5	1.0250	0.0247	0.0006
cember	20.5	1.0000	0.0000	0.0000
			-0.2377	**0.0437**
eorge Williamson Kenya Ltd				
anuary	93			
ebruary	87	0.9355	-0.0667	0.0044
March	87	1.0000	0.0000	0.0000
pril	90	1.0345	0.0339	0.0011
May	77	0.8556	-0.1560	0.0243
June	75	0.9740	-0.0263	0.0007
July	71.5	0.9533	-0.0478	0.0023
August	59	0.8252	-0.1922	0.0369
September	71	1.2034	0.1851	0.0343
October	91	1.2817	0.2482	0.0616
November	90.5	0.9945	-0.0055	0.0000
December	97	1.0718	0.0694	0.0048
			0.0421	**0.1705**
Kakuzi Ltd				
January	97.5			

Computation of monthly returns- Agricultural sector-2000

ary	77.5	0.7949	-0.2296	0.0527
	70	0.9032	-0.1018	0.0104
	67	0.9571	-0.0438	0.0019
	67	1.0000	0.0000	0.0000
	66.5	0.9925	-0.0075	0.0001
	63	0.9474	-0.0541	0.0029
st	63	1.0000	0.0000	0.0000
mber	53	0.8413	-0.1728	0.0299
ber	51	0.9623	-0.0385	0.0015
mber	55	1.0784	0.0755	0.0057
mber	55	1.0000	0.0000	0.0000
			-0.5725	**0.1050**
horua Tea Co Ltd				
ary	150			
uary	150	1.0000	0.0000	0.0000
ch	150	1.0000	0.0000	0.0000
	150	1.0000	0.0000	0.0000
	150	1.0000	0.0000	0.0000
e	150	1.0000	0.0000	0.0000
	150	1.0000	0.0000	0.0000
ust	150	1.0000	0.0000	0.0000
tember	150	1.0000	0.0000	0.0000
ber	150	1.0000	0.0000	0.0000
vember	150	1.0000	0.0000	0.0000
cember	150	1.0000	0.0000	0.0000
			0.0000	**0.0000**
muru Tea Co Ltd				
nuary	650			
bruary	650	1.0000	0.0000	0.0000
arch	650	1.0000	0.0000	0.0000
ril	650	1.0000	0.0000	0.0000
ay	650	1.0000	0.0000	0.0000
ne	650	1.0000	0.0000	0.0000
y	650	1.0000	0.0000	0.0000
gust	650	1.0000	0.0000	0.0000
ptember	650	1.0000	0.0000	0.0000
tober	650	1.0000	0.0000	0.0000
vember	650	1.0000	0.0000	0.0000
ecember	650	1.0000	0.0000	0.0000
			0.0000	**0.0000**
ea Vipingo Ltd				
anuary	4.7			
ebruary	4.2	0.8936	-0.1125	0.0127
larch	4.05	0.9643	-0.0364	0.0013
pril	4	0.9877	-0.0124	0.0002
lay	4.05	1.0125	0.0124	0.0002
une	3.85	0.9506	-0.0506	0.0026
uly	3.6	0.9351	-0.0671	0.0045
August	3.7	1.0278	0.0274	0.0008

ember	3.7	1.0000	0.0000	0.0000
ber	3.75	1.0135	0.0134	0.0002
mber	3.75	1.0000	0.0000	0.0000
mber	3.1	0.8267	-0.1904	0.0362
			-0.4162	**0.0585**

i Tea & Coffee Ltd

ary	45			
uary	36	0.8000	-0.2231	0.0498
h	35.5	0.9861	-0.0140	0.0002
	31.75	0.8944	-0.1116	0.0125
	36.5	1.1496	0.1394	0.0194
e	35	0.9589	-0.0420	0.0018
	34	0.9714	-0.0290	0.0008
ust	34	1.0000	0.0000	0.0000
tember	34.75	1.0221	0.0218	0.0005
ber	34	0.9784	-0.0218	0.0005
ember	35	1.0294	0.0290	0.0008
ember	34	0.9714	-0.0290	0.0008
			-0.2803	**0.0871**

FINANCE AND INVESTMENT SECTOR 2000

COMPANY

Barclays Bank Ltd	*Closing stock price* Sh	*Price relative* S1/S1-1	*Monthly return* U1=ln (S1/S1-1)	U1*U1
January	101			
February	115	1.1386	0.1298	0.0169
March	90	0.7826	-0.2451	0.0601
April	90	1.0000	0.0000	0.0000
May	87	0.9667	-0.0339	0.0011
June	86	0.9885	-0.0116	0.0001
July	82	0.9535	-0.0476	0.0023
August	87	1.0610	0.0592	0.0035
September	88.5	1.0172	0.0171	0.0003
October	96.5	1.0904	0.0865	0.0075
November	80.5	0.8342	-0.1813	0.0329
December	75.5	0.9379	-0.0641	0.0041
			-0.2910	**0.1287**
City Trust Ltd				
January	21.5			
February	22	1.0233	0.0230	0.0005
March	22	1.0000	0.0000	0.0000
April	22	1.0000	0.0000	0.0000
May	20	0.9091	-0.0953	0.0091
June	20	1.0000	0.0000	0.0000
July	20	1.0000	0.0000	0.0000
August	20	1.0000	0.0000	0.0000
September	20	1.0000	0.0000	0.0000
October	23.25	1.1625	0.1506	0.0227
November	23.25	1.0000	0.0000	0.0000
December	23.25	1.0000	0.0000	0.0000
			0.0783	**0.0323**
CFC Bank Ltd				
January	14.05			
February	14	0.9964	-0.0036	0.0000
March	15.15	1.0821	0.0789	0.0062
April	16	1.0561	0.0546	0.0030
May	13.65	0.8531	-0.1588	0.0252
June	9.8	0.7179	-0.3314	0.1098
July	10.5	1.0714	0.0690	0.0048
August	10.9	1.0381	0.0374	0.0014
September	10	0.9174	-0.0862	0.0074
October	10	1.0000	0.0000	0.0000
November	9.75	0.9750	-0.0253	0.0006
December	10.05	1.0308	0.0303	0.0009
			-0.3350	**0.1594**
Diamond Trust Bank Kenya Ltd				

Computation of monthly returns- Finance and Investment sector-2000

January	25			
February	28	1.1200	0.1133	0.0128
March	26.75	0.9554	-0.0457	0.0021
April	24.75	0.9252	-0.0777	0.0060
May	21.25	0.8586	-0.1525	0.0232
June	20	0.9412	-0.0606	0.0037
July	19.95	0.9975	-0.0025	0.0000
August	18	0.9023	-0.1029	0.0106
September	15	0.8333	-0.1823	0.0332
October	16	1.0667	0.0645	0.0042
November	14.5	0.9063	-0.0984	0.0097
December	14	0.9655	-0.0351	0.0012
			-0.5798	**0.1068**

Housing Finance Co (K) Ltd

January	25			
February	8.55	0.3420	-1.0729	1.1512
March	9.45	1.1053	0.1001	0.0100
April	7.75	0.8201	-0.1983	0.0393
May	8	1.0323	0.0317	0.0010
June	7.05	0.8813	-0.1264	0.0160
July	7	0.9929	-0.0071	0.0001
August	6.25	0.8929	-0.1133	0.0128
September	7.8	1.2480	0.2215	0.0491
October	7	0.8974	-0.1082	0.0117
November	6.2	0.8857	-0.1214	0.0147
December	5.5	0.8871	-0.1198	0.0144
			-1.5141	**1.3203**

ICDC Investments Co Ltd

January	50			
February	45	0.9000	-0.1054	0.0111
March	40.5	0.9000	-0.1054	0.0111
April	46.25	1.1420	0.1328	0.0176
May	47	1.0162	0.0161	0.0003
June	49.5	1.0532	0.0518	0.0027
July	45.25	0.9141	-0.0898	0.0081
August	50	1.1050	0.0998	0.0100
September	50	1.0000	0.0000	0.0000
October	50	1.0000	0.0000	0.0000
November	51	1.0200	0.0198	0.0004
December	46.5	0.9118	-0.0924	0.0085
			-0.0726	**0.0697**

Jubilee Insurance Co Ltd

January	25.5			
February	26.5	1.0392	0.0385	0.0015
March	26.25	0.9906	-0.0095	0.0001
April	25.5	0.9714	-0.0290	0.0008

ay	21.25	0.8333	-0.1823	0.0332
ne	22	1.0353	0.0347	0.0012
ly	22	1.0000	0.0000	0.0000
ugust	19.7	0.8955	-0.1104	0.0122
eptember	18	0.9137	-0.0902	0.0081
ctober	19	1.0556	0.0541	0.0029
ovember	19	1.0000	0.0000	0.0000
ecember	18.5	0.9737	-0.0267	0.0007
			-0.3209	**0.0608**
Kenya Commercial Bank Ltd				
anuary	35			
February	31.5	0.9000	-0.1054	0.0111
March	25	0.7937	-0.2311	0.0534
April	26.5	1.0600	0.0583	0.0034
May	27.5	1.0377	0.0370	0.0014
June	28	1.0182	0.0180	0.0003
July	23.75	0.8482	-0.1646	0.0271
August	25	1.0526	0.0513	0.0026
September	27	1.0800	0.0770	0.0059
October	27	1.0000	0.0000	0.0000
November	28	1.0370	0.0364	0.0013
December	25.5	0.9107	-0.0935	0.0087
			-0.3167	**0.1153**
National Bank of Kenya Ltd				
January	5			
February	4	0.8000	-0.2231	0.0498
March	3.55	0.8875	-0.1193	0.0142
April	4.1	1.1549	0.1440	0.0207
May	3.95	0.9634	-0.0373	0.0014
June	3.6	0.9114	-0.0928	0.0086
July	4	1.1111	0.1054	0.0111
August	4.05	1.0125	0.0124	0.0002
September	4.1	1.0123	0.0123	0.0002
October	5	1.2195	0.1985	0.0394
November	3.95	0.7900	-0.2357	0.0556
December	3.15	0.7975	-0.2263	0.0512
			-0.4620	**0.2524**
National Industrial Credit Ltd				
January	25.5			
February	26	1.0196	0.0194	0.0004
March	27	1.0385	0.0377	0.0014
April	27	1.0000	0.0000	0.0000
May	27.75	1.0278	0.0274	0.0008
June	21	0.7568	-0.2787	0.0777
July	25	1.1905	0.1744	0.0304
August	26	1.0400	0.0392	0.0015
September	24.5	0.9423	-0.0594	0.0035

October	23	0.9388	-0.0632	0.0040
November	20	0.8696	-0.1398	0.0195
December	17.75	0.8875	-0.1193	0.0142
			-0.3623	**0.1535**

Pan Africa Insurance Ltd

January	25.5			
February	21	0.8235	-0.1942	0.0377
March	21	1.0000	0.0000	0.0000
April	21.75	1.0357	0.0351	0.0012
May	21	0.9655	-0.0351	0.0012
June	20	0.9524	-0.0488	0.0024
July	19.45	0.9725	-0.0279	0.0008
August	19	0.9769	-0.0234	0.0005
September	17.75	0.9342	-0.0681	0.0046
October	17.75	1.0000	0.0000	0.0000
November	16	0.9014	-0.1038	0.0108
December	11	0.6875	-0.3747	0.1404
			-0.8408	**0.1997**

Standard Chartered Bank Ltd

January	57			
February	75.5	1.3246	0.2811	0.0790
March	52.5	0.6954	-0.3633	0.1320
April	47.75	0.9095	-0.0948	0.0090
May	47	0.9843	-0.0158	0.0003
June	48	1.0213	0.0211	0.0004
July	51	1.0625	0.0606	0.0037
August	54	1.0588	0.0572	0.0033
September	55	1.0185	0.0183	0.0003
October	55	1.0000	0.0000	0.0000
November	49.5	0.9000	-0.1054	0.0111
December	49.5	1.0000	0.0000	0.0000
			-0.1411	**0.2391**

ERCIAL AND SERVICES SECTOR 2000

PANY

Lakes Corporation Plc	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1)	U1*U1
ary	Not listed			0.0000
uary	Not listed			0.0000
h	128			0.0000
	120	0.9375	-0.0645	0.0042
	97	0.8083	-0.2128	0.0453
e	61	0.6289	-0.4638	0.2151
	61	1.0000	0.0000	0.0000
st	65.5	1.0738	0.0712	0.0051
mber	57	0.8702	-0.1390	0.0193
ber	57	1.0000	0.0000	0.0000
mber	57	1.0000	0.0000	0.0000
mber	34.5	0.6053	-0.5021	0.2521
			-1.3111	**0.5411**
aumann & Co Ltd				
uary	14.7			0.0000
ruary	14.7	1.0000	0.0000	0.0000
ch	14.3	0.9728	-0.0276	0.0008
l	14	0.9790	-0.0212	0.0004
y	14	1.0000	0.0000	0.0000
e	13.8	0.9857	-0.0144	0.0002
y	13	0.9420	-0.0597	0.0036
gust	12	0.9231	-0.0800	0.0064
tember	11.8	0.9833	-0.0168	0.0003
ober	9.5	0.8051	-0.2168	0.0470
vember	9.5	1.0000	0.0000	0.0000
cember	9.5	1.0000	0.0000	0.0000
			-0.4366	**0.0587**
M C Holdings Ltd				
nuary	30			0.0000
bruary	30	1.0000	0.0000	0.0000
rch	25	0.8333	-0.1823	0.0332
ril	19.75	0.7900	-0.2357	0.0556
ay	17.8	0.9013	-0.1040	0.0108
ne	16.8	0.9438	-0.0578	0.0033
ly	16.75	0.9970	-0.0030	0.0000
ugust	16.4	0.9791	-0.0211	0.0004
September	16	0.9756	-0.0247	0.0006
October	16	1.0000	0.0000	0.0000
November	15.7	0.9813	-0.0189	0.0004
December	15.25	0.9713	-0.0291	0.0008
			-0.6766	**0.1052**
Car & General (K) Ltd				
January	10			0.0000

ary	10	1.0000	0.0000	0.0000
	10	1.0000	0.0000	0.0000
	10	1.0000	0.0000	0.0000
	10.25	1.0250	0.0247	0.0006
	10.05	0.9805	-0.0197	0.0004
	19	1.8905	0.6369	0.4056
st	19	1.0000	0.0000	0.0000
mber	19	1.0000	0.0000	0.0000
er	10	0.5263	-0.6419	0.4120
mber	10	1.0000	0.0000	0.0000
mber	10	1.0000	0.0000	0.0000
			0.0000	**0.8186**
ess Kenya Ltd				
ary	19.1			0.0000
uary	19.35	1.0131	0.0130	0.0002
ch	19.65	1.0155	0.0154	0.0002
	19.65	1.0000	0.0000	0.0000
	19.05	0.9695	-0.0310	0.0010
e	19.05	1.0000	0.0000	0.0000
	17.5	0.9186	-0.0849	0.0072
ust	17	0.9714	-0.0290	0.0008
tember	16.75	0.9853	-0.0148	0.0002
ober	18	1.0746	0.0720	0.0052
ember	17.9	0.9944	-0.0056	0.0000
cember	17.9	1.0000	0.0000	0.0000
			-0.0649	**0.0148**
nya Airways Ltd				
uary	7.5			0.0000
bruary	7.1	0.9467	-0.0548	0.0030
arch	7.5	1.0563	0.0548	0.0030
ril	7.65	1.0200	0.0198	0.0004
ay	8.1	1.0588	0.0572	0.0033
ne	8	0.9877	-0.0124	0.0002
y	7	0.8750	-0.1335	0.0178
gust	8.2	1.1714	0.1582	0.0250
ptember	8.7	1.0610	0.0592	0.0035
ctober	8.95	1.0287	0.0283	0.0008
ovember	8.7	0.9721	-0.0283	0.0008
ecember	9	1.0345	0.0339	0.0011
			0.1823	**0.0589**
arshalls (EA) Ltd				
anuary	23.5			0.0000
ebruary	23.5	1.0000	0.0000	0.0000
March	23.5	1.0000	0.0000	0.0000
April	23.5	1.0000	0.0000	0.0000
May	23.5	1.0000	0.0000	0.0000
June	19.3	0.8213	-0.1969	0.0388
July	19.3	1.0000	0.0000	0.0000
August	19.3	1.0000	0.0000	0.0000

mber	19.3	1.0000	0.0000	0.0000
er	18.6	0.9637	-0.0369	0.0014
mber	18.6	1.0000	0.0000	0.0000
mber	18.6	1.0000	0.0000	0.0000
			-0.2338	**0.0401**
n Media Group Ltd				
ary	93			0.0000
uary	90.5	0.9731	-0.0272	0.0007
h	87.5	0.9669	-0.0337	0.0011
	75	0.8571	-0.1542	0.0238
	74	0.9867	-0.0134	0.0002
e	75	1.0135	0.0134	0.0002
	75	1.0000	0.0000	0.0000
ust	69	0.9200	-0.0834	0.0070
ember	68.5	0.9928	-0.0073	0.0001
ber	70	1.0219	0.0217	0.0005
ember	69	0.9857	-0.0144	0.0002
ember	69	1.0000	0.0000	0.0000
			-0.2985	**0.0337**
r Drycleaners Ltd				
uary	3			0.0000
ruary	3	1.0000	0.0000	0.0000
rch	3	1.0000	0.0000	0.0000
il	3	1.0000	0.0000	0.0000
y	3	1.0000	0.0000	0.0000
ne	2.4	0.8000	-0.2231	0.0498
y	2.4	1.0000	0.0000	0.0000
gust	2.4	1.0000	0.0000	0.0000
ptember	2.05	0.8542	-0.1576	0.0248
tober	2.05	1.0000	0.0000	0.0000
vember	2.05	1.0000	0.0000	0.0000
cember	2.05	1.0000	0.0000	0.0000
			-0.3808	**0.0746**
andard Newspapers Ltd				
nuary	10.75			0.0000
bruary	10.5	0.9767	-0.0235	0.0006
arch	10.05	0.9571	-0.0438	0.0019
ril	8.05	0.8010	-0.2219	0.0492
ay	8.75	1.0870	0.0834	0.0070
ne	6.1	0.6971	-0.3608	0.1302
y	16	2.6230	0.9643	0.9299
ugust	17.1	1.0688	0.0665	0.0044
eptember	16.4	0.9591	-0.0418	0.0017
ctober	16.5	1.0061	0.0061	0.0000
ovember	16.6	1.0061	0.0060	0.0000
ecember	15.8	0.9518	-0.0494	0.0024
			0.3851	**1.1274**
Tourism Promotion Services (Serena)				

ary	16.15			0.0000
ary	16.15	1.0000	0.0000	0.0000
h	17.95	1.1115	0.1057	0.0112
	17	0.9471	-0.0544	0.0030
	16.2	0.9529	-0.0482	0.0023
	15.95	0.9846	-0.0156	0.0002
	6.3	0.3950	-0.9289	0.8629
st	6.25	0.9921	-0.0080	0.0001
mber	7.4	1.1840	0.1689	0.0285
ber	7.2	0.9730	-0.0274	0.0008
mber	7.5	1.0417	0.0408	0.0017
mber	7.15	0.9533	-0.0478	0.0023
			-0.8148	**0.9129**
mi Supermarkets Ltd				
ary	40			0.0000
uary	43.5	1.0875	0.0839	0.0070
ch	43.25	0.9943	-0.0058	0.0000
	43.25	1.0000	0.0000	0.0000
	42.25	0.9769	-0.0234	0.0005
e	42.75	1.0118	0.0118	0.0001
	41.5	0.9708	-0.0297	0.0009
gust	44	1.0602	0.0585	0.0034
tember	45.25	1.0284	0.0280	0.0008
ober	50	1.1050	0.0998	0.0100
vember	46.5	0.9300	-0.0726	0.0053
cember	49	1.0538	0.0524	0.0027
			0.2029	**0.0308**

TRIAL AND ALLIED SECTOR 2000

ANY

ver Mining Ltd	Closing stock price Sh	Price relative S1/S1-1	Monthly return U1=ln (S1/S1-1)	U1*U1
ry	4.75			0.0000
ary	4.8	1.0105	0.0105	0.0001
	6.3	1.3125	0.2719	0.0739
	6.4	1.0159	0.0157	0.0002
	6	0.9375	-0.0645	0.0042
	4.55	0.7583	-0.2766	0.0765
	4.5	0.9890	-0.0110	0.0001
st	4.6	1.0222	0.0220	0.0005
mber	4.5	0.9783	-0.0220	0.0005
er	4.5	1.0000	0.0000	0.0000
mber	4.35	0.9667	-0.0339	0.0011
mber	4	0.9195	-0.0839	0.0070
			-0.1719	**0.1643**
buri Cement Ltd				
ary	26.25			0.0000
uary	26	0.9905	-0.0096	0.0001
ch	27.5	1.0577	0.0561	0.0031
	26.5	0.9636	-0.0370	0.0014
	28.5	1.0755	0.0728	0.0053
e	29.25	1.0263	0.0260	0.0007
	32	1.0940	0.0899	0.0081
gust	31.75	0.9922	-0.0078	0.0001
tember	32.25	1.0157	0.0156	0.0002
ober	34	1.0543	0.0528	0.0028
vember	33.25	0.9779	-0.0223	0.0005
cember	33.75	1.0150	0.0149	0.0002
			0.2513	**0.0225**
tish American Tobacco Ltd				
nuary	73			0.0000
bruary	94	1.2877	0.2528	0.0639
arch	64	0.6809	-0.3844	0.1478
ril	62	0.9688	-0.0317	0.0010
ay	61	0.9839	-0.0163	0.0003
ne	57	0.9344	-0.0678	0.0046
y	60	1.0526	0.0513	0.0026
ugust	64.5	1.0750	0.0723	0.0052
eptember	70	1.0853	0.0818	0.0067
ctober	71	1.0143	0.0142	0.0002
lovember	67	0.9437	-0.0580	0.0034
December	60.5	0.9030	-0.1020	0.0104
			-0.1878	**0.2461**
B O C Gases Ltd				
January	64			0.0000

Computation of monthly returns-Industrial and Allied sector-2000

	64	1.0000	0.0000	0.0000
	65	1.0156	0.0155	0.0002
	63	0.9692	-0.0313	0.0010
	50.5	0.8016	-0.2212	0.0489
	47.25	0.9356	-0.0665	0.0044
	48.25	1.0212	0.0209	0.0004
	41	0.8497	-0.1628	0.0265
	43	1.0488	0.0476	0.0023
	44	1.0233	0.0230	0.0005
	44.5	1.0114	0.0113	0.0001
	47.25	1.0618	0.0600	0.0036
			-0.3034	**0.0880**
Investments Ltd				
	67			0.0000
	70	1.0448	0.0438	0.0019
	70.4	1.0057	0.0057	0.0000
	69	0.9801	-0.0201	0.0004
	56.5	0.8188	-0.1999	0.0399
	50	0.8850	-0.1222	0.0149
	49	0.9800	-0.0202	0.0004
	48	0.9796	-0.0206	0.0004
	50	1.0417	0.0408	0.0017
	59	1.1800	0.1655	0.0274
	46.5	0.7881	-0.2381	0.0567
	40	0.8602	-0.1506	0.0227
			-0.5158	**0.1665**
Berger Ltd				
	10			0.0000
	9.65	0.9650	-0.0356	0.0013
	10.4	1.0777	0.0748	0.0056
	11.85	1.1394	0.1305	0.0170
	12.8	1.0802	0.0771	0.0059
	12.5	0.9766	-0.0237	0.0006
	11.05	0.8840	-0.1233	0.0152
	11.4	1.0317	0.0312	0.0010
	10.65	0.9342	-0.0681	0.0046
	8.5	0.7981	-0.2255	0.0508
	8.55	1.0059	0.0059	0.0000
	9	1.0526	0.0513	0.0026
			-0.1054	**0.1047**
Kenya Ltd				
	9.75			0.0000
	8.55	0.8769	-0.1313	0.0172
	8	0.9357	-0.0665	0.0044
	7.8	0.9750	-0.0253	0.0006
	8.5	1.0897	0.0859	0.0074
	7.5	0.8824	-0.1252	0.0157
	7.5	1.0000	0.0000	0.0000
	7.5	1.0000	0.0000	0.0000

mber	7.5	1.0000	0.0000	0.0000
er	7	0.9333	-0.0690	0.0048
mber	6.4	0.9143	-0.0896	0.0080
mber	6.4	1.0000	0.0000	0.0000
			-0.4210	**0.0582**
ables Ltd				
ary	12.7			0.0000
uary	11.75	0.9252	-0.0777	0.0060
h	9.5	0.8085	-0.2126	0.0452
	9.55	1.0053	0.0052	0.0000
	9.5	0.9948	-0.0052	0.0000
e	8	0.8421	-0.1719	0.0295
	6	0.7500	-0.2877	0.0828
ust	6.9	1.1500	0.1398	0.0195
ember	9.7	1.4058	0.3406	0.1160
ber	9.7	1.0000	0.0000	0.0000
ember	8	0.8247	-0.1927	0.0371
ember	9.25	1.1563	0.1452	0.0211
			-0.3170	**0.3573**
Packaging Ltd				
uary	11			0.0000
ruary	12.35	1.1227	0.1158	0.0134
rch	12.8	1.0364	0.0358	0.0013
il	13.05	1.0195	0.0193	0.0004
ay	13	0.9962	-0.0038	0.0000
ne	13.2	1.0154	0.0153	0.0002
y	14.1	1.0682	0.0660	0.0044
gust	14.5	1.0284	0.0280	0.0008
tember	14.5	1.0000	0.0000	0.0000
tober	14.3	0.9862	-0.0139	0.0002
vember	6.4	0.4476	-0.8040	0.6464
cember	7.5	1.1719	0.1586	0.0252
			-0.3830	**0.6921**
Portland Cement Ltd				
nuary	11.35			0.0000
bruary	11.5	1.0132	0.0131	0.0002
arch	10.05	0.8739	-0.1348	0.0182
ril	11.55	1.1493	0.1391	0.0194
ay	11.1	0.9610	-0.0397	0.0016
ne	12.4	1.1171	0.1108	0.0123
y	12.65	1.0202	0.0200	0.0004
ugust	12.5	0.9881	-0.0119	0.0001
eptember	12.5	1.0000	0.0000	0.0000
October	12	0.9600	-0.0408	0.0017
lovember	11.75	0.9792	-0.0211	0.0004
December	11.7	0.9957	-0.0043	0.0000
			0.0304	**0.0542**
Firestone East Africa Ltd				

	16			0.0000
	12.9	0.8063	-0.2154	0.0464
	12.6	0.9767	-0.0235	0.0006
	12.5	0.9921	-0.0080	0.0001
	11.5	0.9200	-0.0834	0.0070
	12.95	1.1261	0.1187	0.0141
	12	0.9266	-0.0762	0.0058
	11.05	0.9208	-0.0825	0.0068
mber	12	1.0860	0.0825	0.0068
er	12.5	1.0417	0.0408	0.0017
mber	12	0.9600	-0.0408	0.0017
mber	11.5	0.9583	-0.0426	0.0018
			-0.3302	**0.0926**
Africa Breweries Ltd				
ary	66.5			0.0000
uary	70	1.0526	0.0513	0.0026
h	70	1.0000	0.0000	0.0000
	69	0.9857	-0.0144	0.0002
	66.5	0.9638	-0.0369	0.0014
	65.5	0.9850	-0.0152	0.0002
	68	1.0382	0.0375	0.0014
ust	76	1.1176	0.1112	0.0124
tember	79	1.0395	0.0387	0.0015
ober	80	1.0127	0.0126	0.0002
vember	81	1.0125	0.0124	0.0002
cember	74.5	0.9198	-0.0837	0.0070
			0.1136	**0.0270**
ya National Mills Ltd				
uary	9.4			0.0000
bruary	9.05	0.9628	-0.0379	0.0014
rch	16.7	1.8453	0.6126	0.3753
ril	12.5	0.7485	-0.2897	0.0839
ay	11.5	0.9200	-0.0834	0.0070
ne	10.5	0.9130	-0.0910	0.0083
y	8.5	0.8095	-0.2113	0.0447
gust	8	0.9412	-0.0606	0.0037
ptember	9.3	1.1625	0.1506	0.0227
tober	7.6	0.8172	-0.2019	0.0407
ovember	7.05	0.9276	-0.0751	0.0056
ecember	7	0.9929	-0.0071	0.0001
			-0.2948	**0.5934**
enya Oil Co Ltd				
anuary	70			0.0000
ebruary	79	1.1286	0.1210	0.0146
March	76	0.9620	-0.0387	0.0015
April	84	1.1053	0.1001	0.0100
May	76.5	0.9107	-0.0935	0.0087
June	82	1.0719	0.0694	0.0048
July	80	0.9756	-0.0247	0.0006

	78	0.9750	-0.0253	0.0006
ber	81	1.0385	0.0377	0.0014
	79	0.9753	-0.0250	0.0006
ber	78	0.9873	-0.0127	0.0002
ber	73	0.9359	-0.0662	0.0044
			0.0420	**0.0476**
Power & Lighting Ltd				
	93.5			0.0000
ary	91.5	0.9786	-0.0216	0.0005
	88	0.9617	-0.0390	0.0015
	78	0.8864	-0.1206	0.0146
	50	0.6410	-0.4447	0.1977
	51.5	1.0300	0.0296	0.0009
	50.5	0.9806	-0.0196	0.0004
	46.5	0.9208	-0.0825	0.0068
mber	44	0.9462	-0.0553	0.0031
er	41	0.9318	-0.0706	0.0050
mber	44.75	1.0915	0.0875	0.0077
mber	40	0.8939	-0.1122	0.0126
			-0.8491	**0.2506**
Kenya Ltd				
ary	49			0.0000
uary	65	1.3265	0.2826	0.0798
	48.75	0.7500	-0.2877	0.0828
	49	1.0051	0.0051	0.0000
	49	1.0000	0.0000	0.0000
	51	1.0408	0.0400	0.0016
	55	1.0784	0.0755	0.0057
ust	56.5	1.0273	0.0269	0.0007
tember	56.5	1.0000	0.0000	0.0000
ober	56	0.9912	-0.0089	0.0001
ember	57	1.0179	0.0177	0.0003
cember	55	0.9649	-0.0357	0.0013
			0.1155	**0.1723**
ga Group Ltd				
uary	18.6			0.0000
bruary	18.6	1.0000	0.0000	0.0000
rch	24.75	1.3306	0.2857	0.0816
il	30.25	1.2222	0.2007	0.0403
ay	27.75	0.9174	-0.0863	0.0074
ne	15.4	0.5550	-0.5889	0.3468
y	14.5	0.9416	-0.0602	0.0036
gust	13.5	0.9310	-0.0715	0.0051
ptember	14.95	1.1074	0.1020	0.0104
ctober	14.75	0.9866	-0.0135	0.0002
ovember	14.5	0.9831	-0.0171	0.0003
ecember	13.9	0.9586	-0.0423	0.0018
			-0.2913	**0.4975**

APPENDIX 2- COMPUTATION OF ESTIMATED VOLATILITIES

ESTIMATED VOLATILITY 1997

SECTOR	COMPANY	u12	n-1	a u12/n-1	u1	u1*u1	n(n-1)	b u1*u1/n(n-1)	a-b	sqrt(a-b)	months	c	Volatility	Volatility
Agricultural	*Brooke Bond Kenya Limited*	0.0263436	11	0.002395	-0.30346594	0.092092	132	0.000698	0.001697209	0.041197	12	3.464102	0.142711	14%
	Eaagads Limited	0.25781642	11	0.023438	0.432616097	0.187157	132	0.001418	0.022020002	0.148391	12	3.464102	0.514043	51%
	George Williamson Kenya Ltd	0.42633173	11	0.038757	0.15706189	0.024668	132	0.000187	0.038570548	0.196394	12	3.464102	0.680328	68%
	Kakuzi Ltd	0.23582985	11	0.021439	-0.020619287	0.000425	132	3.22E-06	0.021435857	0.14641	12	3.464102	0.507179	51%
	Kapchorua Tea Co Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Limuru Tea Co Ltd	0.11290047	11	0.010264	-0.550046337	0.302551	132	0.002292	0.007971626	0.089284	12	3.464102	0.309289	31%
	Rea Vipingo Ltd	0.06886309	11	0.00626	-0.200670695	0.040269	132	0.000305	0.005955215	0.07717	12	3.464102	0.267325	27%
	Sasini Tea & Coffee Ltd	0.146429	11	0.013312	0.44895022	0.201556	132	0.001527	0.011784785	0.108558	12	3.464102	0.376055	38%
Finance & Investment	*Barclays Bank Ltd*	0.02591979	11	0.002356	1.80411E-16	3.25E-32	132	2.47E-34	0.002356344	0.048542	12	3.464102	0.168155	17%
	City Trust Ltd	0.01861278	11	0.001692	0.029852963	0.000891	132	6.75E-06	0.001685319	0.041053	12	3.464102	0.142211	14%
	CFC Bank Ltd	0.1372008	11	0.012473	-0.234193388	0.054847	132	0.000416	0.012057296	0.109806	12	3.464102	0.380378	38%
	Diamond Trust Bank Kenya Ltd	0.07930236	11	0.007209	-0.506269807	0.256309	132	0.001942	0.005267569	0.072578	12	3.464102	0.251418	25%
	Housing Finance Co (K) Ltd	0.02235066	11	0.002032	-0.233614851	0.054576	132	0.000413	0.001618425	0.04023	12	3.464102	0.13936	14%
	ICDC Investments Co Ltd	0.52972471	11	0.048157	-0.133531393	0.017831	132	0.000135	0.048021712	0.219139	12	3.464102	0.759118	76%
	Jubilee Insurance Co Ltd	0.07235804	11	0.006578	-0.039740329	0.001579	132	1.2E-05	0.006566039	0.081031	12	3.464102	0.2807	28%
	Kenya Commercial Bank Ltd	0.10596887	11	0.009634	-0.156004248	0.024337	132	0.000184	0.00944916	0.097207	12	3.464102	0.336734	34%
	National Bank of Kenya Ltd	0.09136901	11	0.008306	-0.207639365	0.043114	132	0.000327	0.007979652	0.089329	12	3.464102	0.309444	31%
	National Industrial Credit Ltd	0.05314311	11	0.004831	-3.29597E-16	1.09E-31	132	8.23E-34	0.004831192	0.069507	12	3.464102	0.240779	24%
	Regent Undervalued Assets Africa Fund	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Pan Africa Insurance Ltd	0.11127072	11	0.010116	-0.194156014	0.037697	132	0.000286	0.00982994	0.099146	12	3.464102	0.343452	34%
	Standard Chartered Bank Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed												
	A Baumann & Co Ltd	0.34004016	11	0.030913	-0.723918839	0.524058	132	0.00397	0.026942602	0.164142	12	3.464102	0.568605	57%
	CMC Holdings Ltd	0.1314832	11	0.011953	0.133531393	0.017831	132	0.000135	0.011817937	0.10871	12	3.464102	0.376584	38%
	Car & General (K) Ltd	0.05236384	11	0.00476	-0.223143551	0.049793	132	0.000377	0.004383129	0.066205	12	3.464102	0.229342	23%
	Express Kenya Ltd	0.03718115	11	0.00338	-0.253195896	0.064108	132	0.000486	0.002894437	0.0538	12	3.464102	0.186369	19%
	Kenya Airways Ltd	0.01690331	11	0.001537	-0.060624622	0.003675	132	2.78E-05	0.001508821	0.038844	12	3.464102	0.134558	13%
	Lonhro Motors (EA) Ltd	1.44113698	11	0.131012	-1.188468618	1.412458	132	0.0107	0.120312016	0.34686	12	3.464102	1.201559	120%
	Marshalls (EA) Ltd	1.27028396	11	0.11548	-0.147157644	0.021655	132	0.000164	0.115316304	0.339583	12	3.464102	1.176348	118%
	Nation Media Group Ltd	0.28549228	11	0.025954	0.147809504	0.021848	132	0.000166	0.025788331	0.160587	12	3.464102	0.556291	56%
	Pearl Drycleaners Ltd	0.0295037	11	0.002682	0.09531018	0.009084	132	6.88E-05	0.002613336	0.051121	12	3.464102	0.177088	18%
	Standard Newspapers Ltd	0.71021006	11	0.064565	1.767527156	3.124152	132	0.023668	0.040896731	0.202229	12	3.464102	0.700543	70%
	Tourism Promotion Services (Serena)	Not listed for a full year												
	Uchumi Supermarkets Ltd	0.18426475	11	0.016751	-0.019048195	0.000363	132	2.75E-06	0.016748592	0.129416	12	3.464102	0.448311	45%
Industrial and Allied	*Athi River Mining Ltd*	Not listed for a full year												
	Bamburi Cement Ltd	0.18859608	11	0.017145	-0.105360516	0.011101	132	8.41E-05	0.017061001	0.130618	12	3.464102	0.452473	45%
	British American Tobacco Ltd	0.10389176	11	0.009445	-0.506817602	0.256864	132	0.001946	0.007498766	0.086595	12	3.464102	0.299975	30%
	B O C Gases Ltd	1.10407477	11	0.10037	-0.0588405	0.003462	132	2.62E-05	0.100344204	0.316772	12	3.464102	1.097329	110%
	Carbacid Investments Ltd	0.03777046	11	0.003434	-0.217064505	0.047117	132	0.000357	0.003076731	0.055468	12	3.464102	0.192148	19%
	Crown Berger Ltd	0.13164115	11	0.011967	-0.223143551	0.049793	132	0.000377	0.011590158	0.107658	12	3.464102	0.372937	37%
	Dunlop Kenya Ltd	2.46415833	11	0.224014	-1.011600912	1.023336	132	0.007753	0.216261846	0.46504	12	3.464102	1.610944	161%
	EA Cables Ltd	0.07642113	11	0.006947	-0.243622083	0.059352	132	0.00045	0.006497741	0.080609	12	3.464102	0.279236	28%
	EA Packaging Ltd	0.23386101	11	0.02126	-0.356674944	0.127217	132	0.000964	0.020296326	0.142465	12	3.464102	0.493514	49%
	EA Portland Cement Ltd	0.31424768	11	0.028568	-0.202940844	0.041185	132	0.000312	0.028255963	0.168095	12	3.464102	0.582299	58%
	Firestone East Africa Ltd	0.11647808	11	0.010589	-0.223143551	0.049793	132	0.000377	0.010211696	0.101053	12	3.464102	0.350058	35%
	East Africa Breweries Ltd	0.05949239	11	0.005408	-0.068992871	0.00476	132	3.61E-05	0.005372338	0.073296	12	3.464102	0.253906	25%
	Kenya National Mills Ltd	0.10775095	11	0.009796	0.062738341	0.003936	132	2.98E-05	0.009765722	0.098822	12	3.464102	0.342328	34%
	Kenya Oil Co Ltd	0.05620698	11	0.00511	-0.391478866	0.153256	132	0.001161	0.003948697	0.062839	12	3.464102	0.217679	22%
	Kenya Power & Lighting Ltd	0.24599799	11	0.022363	0.693147181	0.480453	132	0.00364	0.018723658	0.136834	12	3.464102	0.474008	47%
	Total Kenya Ltd	0.32084661	11	0.029168	-0.573002869	0.328332	132	0.002487	0.026680508	0.163342	12	3.464102	0.565832	57%
	Unga Group Ltd	0.13773895	11	0.012522	-1.11022E-16	1.23E-32	132	9.34E-35	0.012521723	0.111901	12	3.464102	0.387635	39%

ESTIMATED VOLATILITY-1998

SECTOR	COMPANY	u12	n-1	a u12/n-1	u1	u1*u1	n(n-1)	b u1*u1/n(n-1)	a-b	sqrt(a-b)	Yearly months		Volatility	Volatility
Agricultural	*Brooke Bond Kenya Limited*	0.049668	11	0.004515	0.07124674	0.005076	132	3.85E-05	0.004477	0.066909	12	3.464102	0.23178	23%
	Eaagads Limited	0.081524	11	0.007411	0.079464171	0.006315	132	4.78E-05	0.007363	0.08581	12	3.464102	0.297255	30%
	George Williamson Kenya Ltd	0.053559	11	0.004869	0.255346692	0.065202	132	0.000494	0.004375	0.066144	12	3.464102	0.22913	23%
	Kakuzi Ltd	0.068609	11	0.006237	0.232112221	0.053876	132	0.000408	0.005829	0.076348	12	3.464102	0.264477	26%
	Kapchorua Tea Co Ltd	0.053865	11	0.004897	0.30538165	0.093258	132	0.000706	0.00419	0.064733	12	3.464102	0.224241	22%
	Limuru Tea Co Ltd	0.000315	11	2.86E-05	0.006600684	4.36E-05	132	3.3E-07	2.83E-05	0.005317	12	3.464102	0.018418	2%
	Rea Vipingo Ltd	0.026992	11	0.002454	-0.223143551	0.049793	132	0.000377	0.002077	0.04557	12	3.464102	0.157858	16%
	Sasini Tea & Coffee Ltd	0.180612	11	0.016419	0.123350079	0.015215	132	0.000115	0.016304	0.127687	12	3.464102	0.442321	44%
Finance & Investment	*Barclays Bank Ltd*	0.145619	11	0.013238	0.058989298	0.00348	132	2.64E-05	0.013212	0.114942	12	3.464102	0.398171	40%
	City Trust Ltd	0.631576	11	0.057416	-1.048863811	1.100115	132	0.008334	0.049082	0.221544	12	3.464102	0.767451	77%
	CFC Bank Ltd	0.057296	11	0.005209	-0.243448817	0.059267	132	0.000449	0.00476	0.068991	12	3.464102	0.238991	24%
	Diamond Trust Bank Kenya Ltd	0.035165	11	0.003197	-0.050819248	0.002583	132	1.96E-05	0.003177	0.056367	12	3.464102	0.195261	20%
	Housing Finance Co (K) Ltd	0.094444	11	0.008586	-0.018237588	0.000333	132	2.52E-06	0.008583	0.092646	12	3.464102	0.320936	32%
	ICDC Investments Co Ltd	0.126459	11	0.011496	-0.152782691	0.023343	132	0.000177	0.011319	0.106393	12	3.464102	0.368555	37%
	Jubilee Insurance Co Ltd	0.035847	11	0.003259	-0.112267302	0.012604	132	9.55E-05	0.003163	0.056243	12	3.464102	0.194833	19%
	Kenya Commercial Bank Ltd	0.057707	11	0.005246	-0.292961273	0.085826	132	0.00065	0.004596	0.067793	12	3.464102	0.234842	23%
	National Bank of Kenya Ltd	0.344264	11	0.031297	-0.373966441	0.139851	132	0.001059	0.030237	0.173889	12	3.464102	0.602368	60%
	National Industrial Credit Ltd	0.281901	11	0.025627	-0.349730472	0.122311	132	0.000927	0.024701	0.157165	12	3.464102	0.544434	54%
	Regent Undervalued Assets Africa Fu	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Pan Africa Insurance Ltd	0.042126	11	0.00383	-0.379174413	0.143773	132	0.001089	0.00274	0.05235	12	3.464102	0.181345	18%
	Standard Chartered Bank Ltd	0.104646	11	0.009513	0.086835553	0.00754	132	5.71E-05	0.009456	0.097243	12	3.464102	0.336858	34%
Commercial & Services	*Africa Lakes Corporation Plc*	NOT LISTED												
	A Baumann & Co Ltd	0.011844	11	0.001077	0.080042708	0.006407	132	4.85E-05	0.001028	0.032066	12	3.464102	0.11108	11%
	CMC Holdings Ltd	0.102374	11	0.009307	-0.575932165	0.331698	132	0.002513	0.006794	0.082425	12	3.464102	0.285529	29%
	Car & General (K) Ltd	0.192306	11	0.017482	-0.525714236	0.276375	132	0.002094	0.015389	0.124051	12	3.464102	0.429724	43%
	Express Kenya Ltd	0.191022	11	0.017366	-0.930179844	0.865235	132	0.006555	0.010811	0.103975	12	3.464102	0.360181	36%
	Kenya Airways Ltd	0.058774	11	0.005343	0.064538521	0.004165	132	3.16E-05	0.005312	0.072881	12	3.464102	0.252465	25%
	Lonhro Motors (EA) Ltd	0.093511	11	0.008501	-0.644243374	0.41505	132	0.003144	0.005357	0.07319	12	3.464102	0.253536	25%
	Marshalls (EA) Ltd	0.029267	11	0.002661	-0.148420005	0.022028	132	0.000167	0.002494	0.049938	12	3.464102	0.172989	17%
	Nation Media Group Ltd	0.5991	11	0.054464	0.022338978	0.000499	132	3.78E-06	0.05446	0.233366	12	3.464102	0.808405	81%
	Pearl Drycleaners Ltd	0.001747	11	0.000159	-7.63278E-17	5.83E-33	132	4.41E-35	0.000159	0.012604	12	3.464102	0.043661	4%
	Standard Newspapers Ltd	0.806066	11	0.073279	-0.527585793	0.278347	132	0.002109	0.07117	0.266777	12	3.464102	0.924143	92%
	Tourism Promotion Services (Serena)	0.087457	11	0.007951	-0.14359092	0.020618	132	0.000156	0.007794	0.088286	12	3.464102	0.305831	31%
	Uchumi Supermarkets Ltd	0.089043	11	0.008095	0.048229783	0.002326	132	1.76E-05	0.008077	0.089873	12	3.464102	0.311329	31%
Industrial and Allied	*Athi River Mining Ltd*	0.227247	11	0.020659	-0.426742507	0.182109	132	0.00138	0.019279	0.13885	12	3.464102	0.480989	48%
	Bamburi Cement Ltd	0.197268	11	0.017933	-0.105360516	0.011101	132	8.41E-05	0.017849	0.133601	12	3.464102	0.462809	46%
	British American Tobacco Ltd	0.008642	11	0.000786	0.091105549	0.0083	132	6.29E-05	0.000723	0.026883	12	3.464102	0.093127	9%
	B O C Gases Ltd	0.197268	11	0.017933	-0.105360516	0.011101	132	8.41E-05	0.017849	0.133601	12	3.464102	0.462809	46%
	Carbacid Investments Ltd	0.114966	11	0.010451	0.38083824	0.145038	132	0.001099	0.009353	0.096709	12	3.464102	0.335011	34%
	Crown Berger Ltd	0.192197	11	0.017472	-0.401341391	0.161075	132	0.00122	0.016252	0.127484	12	3.464102	0.441618	44%
	Dunlop Kenya Ltd	0.474369	11	0.043124	-0.112362968	0.012625	132	9.56E-05	0.043029	0.207434	12	3.464102	0.718572	72%
	EA Cables Ltd	0.092397	11	0.0084	-0.402126207	0.161705	132	0.001225	0.007175	0.084703	12	3.464102	0.293421	29%
	EA Packaging Ltd	0.272402	11	0.024764	-1.109239381	1.230412	132	0.009321	0.015443	0.124268	12	3.464102	0.430477	43%
	EA Portland Cement Ltd	0.081738	11	0.007431	-0.53329848	0.284407	132	0.002155	0.005276	0.072637	12	3.464102	0.251622	25%
	Firestone East Africa Ltd	0.082958	11	0.007542	-0.206862666	0.042792	132	0.000324	0.007217	0.084956	12	3.464102	0.294295	29%
	East Africa Breweries Ltd	0.129142	11	0.01174	0.299378112	0.089627	132	0.000679	0.011061	0.105172	12	3.464102	0.364326	36%
	Kenya National Mills Ltd	0.315885	11	0.028717	-0.19451683	0.037837	132	0.000287	0.02843	0.168613	12	3.464102	0.584091	58%
	Kenya Oil Co Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Kenya Power & Lighting Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Total Kenya Ltd	0.025977	11	0.002362	0.161172732	0.025977	132	0.000197	0.002165	0.046527	12	3.464102	0.161173	16%
	Unga Group Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%

ESTIMATED VOLATILITY-1999

SECTOR	COMPANY	u12	n-1	a u12/n-1	u1	u1*u1	n(n-1)	b u1*u1/n(n-1)	a-b	c sqrt(a-b)	Trading months	d	Volatility	Volatility
Agricultural	*Brooke Bond Kenya Limited*	0.147834	11	0.013439	-0.31143616	0.096992	132	0.000735	0.012705	0.112715	12	3.464102	0.390455	39%
	Eaagads Limited	0.352729	11	0.032066	-0.4819512	0.232277	132	0.00176	0.030307	0.174088	12	3.464102	0.603059	60%
	George Williamson Kenya Ltd	0.06184	11	0.005622	-0.44105605	0.19453	132	0.001474	0.004148	0.064405	12	3.464102	0.223107	22%
	Kakuzi Ltd	0.084321	11	0.007666	-0.48285177	0.233146	132	0.001766	0.005899	0.076807	12	3.464102	0.266067	27%
	Kapchorua Tea Co Ltd	0.063036	11	0.005731	0.385662481	0.148736	132	0.001127	0.004604	0.067851	12	3.464102	0.235043	24%
	Limuru Tea Co Ltd	0.024444	11	0.002222	-0.15634607	0.024444	132	0.000185	0.002037	0.045133	12	3.464102	0.156346	16%
	Rea Vipingo Ltd	0.044524	11	0.004048	-0.30318626	0.091922	132	0.000696	0.003351	0.05789	12	3.464102	0.200537	20%
	Sasini Tea & Coffee Ltd	0.082599	11	0.007509	-0.44405745	0.197187	132	0.001494	0.006015	0.077557	12	3.464102	0.268667	27%
											12			
											12			
Finance & Investment	*Barclays Bank Ltd*	0.040225	11	0.003657	-0.15345763	0.023549	132	0.000178	0.003478	0.058978	12	3.464102	0.204307	20%
	City Trust Ltd	0.021564	11	0.00196	-0.19282428	0.037181	132	0.000282	0.001679	0.040971	12	3.464102	0.141929	14%
	CFC Bank Ltd	0.177094	11	0.016099	-0.34046028	0.115913	132	0.000878	0.015221	0.123375	12	3.464102	0.427382	43%
	Diamond Trust Bank Kenya Ltd	0.055545	11	0.00505	0.039220713	0.001538	132	1.17E-05	0.005038	0.070978	12	3.464102	0.245875	25%
	Housing Finance Co (K) Ltd	0.083259	11	0.007569	-0.34887763	0.121716	132	0.000922	0.006647	0.081529	12	3.464102	0.282423	28%
	ICDC Investments Co Ltd	0.009137	11	0.000831	0.194156014	0.037697	132	0.000286	0.000545	0.023347	12	3.464102	0.080878	8%
	Jubilee Insurance Co Ltd	0.062702	11	0.0057	-0.3879208	0.150483	132	0.00114	0.00456	0.067529	12	3.464102	0.233927	23%
	Kenya Commercial Bank Ltd	0.088389	11	0.008035	-0.70265597	0.493725	132	0.00374	0.004295	0.065536	12	3.464102	0.227024	23%
	National Bank of Kenya Ltd	0.098421	11	0.008947	-0.53062825	0.281566	132	0.002133	0.006814	0.082549	12	3.464102	0.285958	29%
	National Industrial Credit Ltd	0.018576	11	0.001689	0.014981554	0.000224	132	1.7E-06	0.001687	0.041074	12	3.464102	0.142283	14%
	Pan Africa Insurance Ltd	1.119452	11	0.101768	0.507115044	0.257166	132	0.001948	0.09982	0.315943	12	3.464102	1.094459	109%
	Standard Chartered Bank Ltd	0.024787	11	0.002253	0.210676783	0.044385	132	0.000336	0.001917	0.043785	12	3.464102	0.151676	15%
Commercial & Services	*Africa Lakes Corporation Plc*	NOT LISTED												
	A Baumann & Co Ltd	0.014269	11	0.001297	-0.12595241	0.015864	132	0.00012	0.001177	0.034307	12	3.464102	0.118842	12%
	CMC Holdings Ltd	0.023181	11	0.002107	-0.10135249	0.010272	132	7.78E-05	0.00203	0.04505	12	3.464102	0.156058	16%
	Car & General (K) Ltd	1.024591	11	0.093145	-0.28768207	0.082761	132	0.000627	0.092518	0.304167	12	3.464102	1.053666	105%
	Express Kenya Ltd	0.261622	11	0.023784	-0.72439972	0.524755	132	0.003975	0.019808	0.140742	12	3.464102	0.487546	49%
	Kenya Airways Ltd	0.137727	11	0.012521	-0.03774033	0.001424	132	1.08E-05	0.01251	0.111847	12	3.464102	0.387451	39%
	Lonhro Motors (EA) Ltd	0.145159	11	0.013196	-0.40796824	0.166438	132	0.001261	0.011935	0.109249	12	3.464102	0.37845	38%
	Marshalls (EA) Ltd	0.034894	11	0.003172	-0.08524428	0.007267	132	5.5E-05	0.003117	0.055832	12	3.464102	0.193407	19%
	Nation Media Group Ltd	0.053371	11	0.004852	-0.29759296	0.088562	132	0.000671	0.004181	0.064661	12	3.464102	0.223992	22%
	Pearl Drycleaners Ltd	1.449551	11	0.131777	-1.2039728	1.449551	132	0.010981	0.120796	0.347557	12	3.464102	1.203973	120%
	Standard Newspapers Ltd	1.228718	11	0.111702	-0.9461437	0.895188	132	0.006782	0.10492	0.323913	12	3.464102	1.122069	112%
	Tourism Promotion Services (Serena)	0.027076	11	0.002461	0.229374101	0.052612	132	0.000399	0.002063	0.045419	12	3.464102	0.157336	16%
	Uchumi Supermarkets Ltd	0.065868	11	0.005988	-0.11296512	0.012761	132	9.67E-05	0.005891	0.076755	12	3.464102	0.265887	27%
											12			
											12			
Industrial and Allied	*Athi River Mining Ltd*	0.159559	11	0.014505	-0.01680712	0.000282	132	2.14E-06	0.014503	0.120429	12	3.464102	0.41718	42%
	Bamburi Cement Ltd	0.100254	11	0.009114	-0.33864261	0.114679	132	0.000869	0.008245	0.090803	12	3.464102	0.314551	31%
	British American Tobacco Ltd	0.068966	11	0.00627	-0.15879106	0.025215	132	0.000191	0.006079	0.077965	12	3.464102	0.27008	27%
	B O C Gases Ltd	0.100254	11	0.009114	-0.33864261	0.114679	132	0.000869	0.008245	0.090803	12	3.464102	0.314551	31%
	Carbacid Investments Ltd	0.077959	11	0.007087	0.047146778	0.002223	132	1.68E-05	0.00707	0.084085	12	3.464102	0.291281	29%
	Crown Berger Ltd	0.433564	11	0.039415	0	0	132	0	0.039415	0.198532	12	3.464102	0.687735	69%
	Dunlop Kenya Ltd	0.384875	11	0.034989	-1.03543339	1.072122	132	0.008122	0.026867	0.16391	12	3.464102	0.567801	57%
	EA Cables Ltd	0.457717	11	0.041611	-0.63193645	0.399344	132	0.003025	0.038585	0.196432	12	3.464102	0.680459	68%
	EA Packaging Ltd	0.330437	11	0.03004	-1.02961942	1.060116	132	0.008031	0.022009	0.148353	12	3.464102	0.513909	51%
	EA Portland Cement Ltd	1.081905	11	0.098355	-0.5798185	0.336189	132	0.002547	0.095808	0.309529	12	3.464102	1.072239	107%
	Firestone East Africa Ltd	0.055682	11	0.005062	-0.22314355	0.049793	132	0.000377	0.004685	0.068445	12	3.464102	0.237102	24%
	East Africa Breweries Ltd	0.040144	11	0.003649	0.166144107	0.027604	132	0.000209	0.00344	0.058654	12	3.464102	0.203184	20%
	Kenya National Mills Ltd	0.594776	11	0.054071	-0.75932909	0.576581	132	0.004368	0.049702	0.22294	12	3.464102	0.772289	77%
	Kenya Oil Co Ltd	0.163148	11	0.014832	0.108972406	0.011875	132	9E-05	0.014742	0.121415	12	3.464102	0.420594	42%
	Kenya Power & Lighting Ltd	0.069007	11	0.006273	-0.33878616	0.114776	132	0.00087	0.005404	0.073511	12	3.464102	0.25465	25%
	Total Kenya Ltd	0.055948	11	0.005086	-0.04680407	0.002191	132	1.66E-05	0.00507	0.071201	12	3.464102	0.246649	25%
	Unga Group Ltd	0.998754	11	0.090796	-0.55961579	0.31317	132	0.002372	0.088423	0.297361	12	3.464102	1.030087	103%

ESTIMATED VOLATILITY-2000

SECTOR	COMPANY	u12	n-1	u12/n-1	u1	u1*u1	n(n-1)	u1*u1/n(n-1)		sqrt(s-s)			
Agricultural	*Brooke Bond Kenya Limited*	0.071908	11	0.006537	-0.069679921	0.004855	132	3.68E-05	0.0065	0.060624	12	3.464102	0.210001	21%
	Eaagads Limited	0.043741	11	0.003976	-0.237671652	0.056488	132	0.000428	0.003549	0.05957	12	3.464102	0.206359	21%
	George Williamson Kenya Ltd	0.170549	11	0.015504	0.042111485	0.001773	132	1.34E-05	0.015491	0.124463	12	3.464102	0.431152	43%
	Kakuzi Ltd	0.105018	11	0.009547	-0.572519193	0.327778	132	0.002483	0.007064	0.084047	12	3.464102	0.291148	29%
	Kapchorua Tea Co Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Limuru Tea Co Ltd	0	11	0	0	0	132	0	0	0	12	3.464102	0	0%
	Rea Vipingo Ltd	0.05852	11	0.00532	-0.416160397	0.173189	132	0.001312	0.004008	0.063309	12	3.464102	0.219308	22%
	Sasini Tea & Coffee Ltd	0.087124	11	0.00792	-0.280301965	0.078569	132	0.000595	0.007325	0.085587	12	3.464102	0.296482	30%
Finance & Investment	*Barclays Bank Ltd*	0.128749	11	0.011704	-0.290987861	0.084674	132	0.000641	0.011063	0.105181	12	3.464102	0.364356	36%
	City Trust Ltd	0.032285	11	0.002935	0.078252197	0.006123	132	4.64E-05	0.002889	0.053746	12	3.464102	0.18618	19%
	CFC Bank Ltd	0.159399	11	0.014491	-0.335049761	0.112258	132	0.00085	0.01364	0.116792	12	3.464102	0.40458	40%
	Diamond Trust Bank Kenya Ltd	0.106804	11	0.009709	-0.579818495	0.336189	132	0.002547	0.007163	0.084632	12	3.464102	0.293174	29%
	Housing Finance Co (K) Ltd	1.320313	11	0.120028	-1.514127733	2.292583	132	0.017368	0.10266	0.320407	12	3.464102	1.109921	111%
	ICDC Investments Co Ltd	0.069719	11	0.006338	-0.072570693	0.005267	132	3.99E-05	0.006298	0.079361	12	3.464102	0.274915	27%
	Jubilee Insurance Co Ltd	0.060826	11	0.00553	-0.32090772	0.102982	132	0.00078	0.00475	0.068917	12	3.464102	0.238734	24%
	Kenya Commercial Bank Ltd	0.11533	11	0.010485	-0.316669609	0.10028	132	0.00076	0.009725	0.098614	12	3.464102	0.341611	34%
	National Bank of Kenya Ltd	0.252353	11	0.022941	-0.46203546	0.213477	132	0.001617	0.021324	0.146027	12	3.464102	0.505853	51%
	National Industrial Credit Ltd	0.15347	11	0.013952	-0.362292936	0.131256	132	0.000994	0.012957	0.113831	12	3.464102	0.394322	39%
	Pan Africa Insurance Ltd	0.199666	11	0.018151	-0.840783179	0.706916	132	0.005355	0.012796	0.113119	12	3.464102	0.391857	39%
	Standard Chartered Bank Ltd	0.239075	11	0.021734	-0.141078598	0.019903	132	0.000151	0.021583	0.146913	12	3.464102	0.50892	51%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for a full yea												
	A Baumann & Co Ltd	0.058679	11	0.005334	-0.436555695	0.190581	132	0.001444	0.003891	0.062375	12	3.464102	0.216074	22%
	CMC Holdings Ltd	0.105224	11	0.009566	-0.676617879	0.457812	132	0.003468	0.006098	0.078087	12	3.464102	0.270501	27%
	Car & General (K) Ltd	0.818573	11	0.074416	-1.11022E-16	1.23E-32	132	9.34E-35	0.074416	0.272792	12	3.464102	0.944981	94%
	Express Kenya Ltd	0.014841	11	0.001349	-0.064887622	0.00421	132	3.19E-05	0.001317	0.036294	12	3.464102	0.125726	13%
	Kenya Airways Ltd	0.058945	11	0.005359	0.182321557	0.033241	132	0.000252	0.005107	0.071462	12	3.464102	0.247551	25%
	Marshalls (EA) Ltd	0.040133	11	0.003648	-0.23383884	0.054681	132	0.000414	0.003234	0.05687	12	3.464102	0.197003	20%
	Nation Media Group Ltd	0.033683	11	0.003062	-0.298492989	0.089098	132	0.000675	0.002387	0.048858	12	3.464102	0.16925	17%
	Pearl Drycleaners Ltd	0.07464	11	0.006785	-0.380772496	0.144988	132	0.001098	0.005687	0.075413	12	3.464102	0.261237	26%
	Standard Newspapers Ltd	1.127371	11	0.102488	0.385104185	0.148305	132	0.001124	0.101365	0.318378	12	3.464102	1.102895	110%
	Tourism Promotion Services (Serena)	0.912852	11	0.082987	-0.814807693	0.663912	132	0.00503	0.077957	0.279208	12	3.464102	0.967204	97%
	Uchumi Supermarkets Ltd	0.030815	11	0.002801	0.202940844	0.041185	132	0.000312	0.002489	0.049894	12	3.464102	0.172836	17%
Industrial and Allied	*Athi River Mining Ltd*	0.16427	11	0.014934	-0.171850257	0.029533	132	0.000224	0.01471	0.121284	12	3.464102	0.420141	42%
	Bamburi Cement Ltd	0.022471	11	0.002043	0.251314428	0.063159	132	0.000478	0.001564	0.039552	12	3.464102	0.13701	14%
	British American Tobacco Ltd	0.246106	11	0.022373	-0.187816076	0.035275	132	0.000267	0.022106	0.148681	12	3.464102	0.515046	52%
	B O C Gases Ltd	0.088025	11	0.008002	-0.303430429	0.09207	132	0.000698	0.007305	0.085468	12	3.464102	0.29607	30%
	Carbacid Investments Ltd	0.1665	11	0.015135	-0.5158	0.266063	132	0.002016	0.01312	0.114542	12	3.464102	0.396784	40%
	Crown Berger Ltd	0.104736	11	0.009521	-0.105360516	0.011101	132	8.41E-05	0.009437	0.097146	12	3.464102	0.336524	34%
	Dunlop Kenya Ltd	0.058153	11	0.005287	-0.420969295	0.177215	132	0.001343	0.003944	0.062802	12	3.464102	0.217553	22%
	EA Cables Ltd	0.357326	11	0.032484	-0.316978442	0.100475	132	0.000761	0.031723	0.178109	12	3.464102	0.616989	62%
	EA Packaging Ltd	0.692139	11	0.062922	-0.382992252	0.146683	132	0.001111	0.06181	0.248617	12	3.464102	0.861235	86%
	EA Portland Cement Ltd	0.054203	11	0.004928	0.030371098	0.000922	132	6.99E-06	0.004921	0.070146	12	3.464102	0.242994	24%
	Firestone East Africa Ltd	0.092605	11	0.008419	-0.330241687	0.10906	132	0.000826	0.007592	0.087135	12	3.464102	0.301843	30%
	East Africa Breweries Ltd	0.027012	11	0.002456	0.113597178	0.012904	132	9.78E-05	0.002358	0.048558	12	3.464102	0.168211	17%
	Kenya National Mills Ltd	0.593358	11	0.053942	-0.29479954	0.086907	132	0.000658	0.053283	0.230832	12	3.464102	0.799624	80%
	Kenya Oil Co Ltd	0.047564	11	0.004324	0.041964199	0.001761	132	1.33E-05	0.004311	0.065656	12	3.464102	0.227437	23%
	Kenya Power & Lighting Ltd	0.250645	11	0.022786	-0.849081982	0.72094	132	0.005462	0.017324	0.131622	12	3.464102	0.455951	46%
	Total Kenya Ltd	0.172325	11	0.015666	0.115512887	0.013343	132	0.000101	0.015565	0.124759	12	3.464102	0.432178	43%
	Unga Group Ltd	0.49748	11	0.045225	-0.291272741	0.08484	132	0.000643	0.044583	0.211146	12	3.464102	0.731432	73%

APPENDIX 3- COMPUTATION OF EXPECTED RETURNS

EXPECTED RETURN-1997

SECTOR	COMPANY	p1	p0	div	p1-p0+div	p1-p0+div/p0	%
Agricultural	*Brooke Bond Kenya Limited*	110	149	0.8	-38.2	-0.256375839	-26%
	Eaagads Limited	42	27.25	2	16.75	0.614678899	61%
	George Williamson Kenya Ltd	86	73.5	1.5	14	0.19047619	19%
	Kakuzi Ltd	96	98	2.4	0.4	0.004081633	0%
	Kapchorua Tea Co Ltd	70	70	1.5	1.5	0.021428571	2%
	Limuru Tea Co Ltd	750	1300	27.5	-522.5	-0.401923077	-40%
	Rea Vipingo Ltd	9	11	1.7	-0.3	-0.027272727	-3%
	Sasini Tea & Coffee Ltd	94	60	3	37	0.616666667	62%
Finance & Investment	*Barclays Bank Ltd*	115	115	10	10	0.086956522	9%
	City Trust Ltd	34	33	1.5	2.5	0.075757576	8%
	CFC Bank Ltd	18	22.75	0	-4.75	-0.208791209	-21%
	Diamond Trust Bank Kenya Ltd	22	36.5	0	-14.5	-0.397260274	-40%
	Housing Finance Co (K) Ltd	19	24	0.75	-4.25	-0.177083333	-18%
	ICDC Investments Co Ltd	35	40	2	-3	-0.075	-8%
	Jubilee Insurance Co Ltd	37	38.5	0.75	-0.75	-0.019480519	-2%
	Kenya Commercial Bank Ltd	77	90	7	-6	-0.066666667	-7%
	National Bank of Kenya Ltd	13	16	0.5	-2.5	-0.15625	-16%
	National Industrial Credit Ltd	50	50	1.75	1.75	0.035	4%
	Regent Undervalued Assets Africa Fund	580	580	0	0	0	0%
	Pan Africa Insurance Ltd	42	51	1.75	-7.25	-0.142156863	-14%
	Standard Chartered Bank Ltd	46	54	3.75	-4.25	-0.078703704	-8%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed					
	A Baumann & Co Ltd	16	33	0.75	-16.25	-0.492424242	-49%
	CMC Holdings Ltd	80	70	0.5	10.5	0.15	15%
	Car & General (K) Ltd	16	20	0	-4	-0.2	-20%
	Express Kenya Ltd	59	76	4.14	-12.86	-0.169210526	-17%
	Kenya Airways Ltd	8	8.5	0.5	0	0	0%
	Lonhro Motors (EA) Ltd	39	128	0	-89	-0.6953125	-70%
	Marshalls (EA) Ltd	41	47.5	4	-2.5	-0.052631579	-5%
	Nation Media Group Ltd	131	113	3.125	21.125	0.186946903	19%
	Pearl Drycleaners Ltd	11	10	0	1	0.1	10%
	Standard Newspapers Ltd	53	9.05	1	44.95	4.966850829	497%
	Tourism Promotion Services (Serena)	Not listed for a full year					
	Uchumi Supermarkets Ltd	39	39.75	3.35	2.6	0.065408805	7%
Industrial and Allied	*Athi River Mining Ltd*	Not listed for a full year					
	Bamburi Cement Ltd	36	40	1.25	-2.75	-0.06875	-7%
	British American Tobacco Ltd	50	83	6	-27	-0.325301205	-33%
	B O C Gases Ltd	66	70	3.35	-0.65	-0.009285714	-1%
	Carbacid Investments Ltd	66	82	2	-14	-0.170731707	-17%
	Crown Berger Ltd	10	12.5	1	-1.5	-0.12	-12%
	Dunlop Kenya Ltd	100	275	0	-175	-0.636363636	-64%
	EA Cables Ltd	29	37	2.5	-5.5	-0.148648649	-15%
	EA Packaging Ltd	49	70	0	-21	-0.3	-30%
	EA Portland Cement Ltd	20	24.5	0.67	-3.83	-0.156326531	-16%
	Firestone East Africa Ltd	24	30	1.8	-4.2	-0.14	-14%
	East Africa Breweries Ltd	49	52.5	6	2.5	0.047619048	5%
	Kenya National Mills Ltd	37	34.75	3.2	5.45	0.156834532	16%
	Kenya Oil Co Ltd	48	71	4	-19	-0.267605634	-27%
	Kenya Power & Lighting Ltd	180	90	8	98	1.088888889	109%
	Total Kenya Ltd	53	94	2.5	-38.5	-0.409574468	-41%
	Unga Group Ltd	120	120	9.8	9.8	0.081666667	8%

EXPECTED RETURN-1998

SECTOR	COMPANY	p1	p0	div	p1-p0+div	E(rs) pi-p0+div/p0	%
Agricultural	*Brooke Bond Kenya Limited*	139.6	110	1.7	31.3	0.284545455	28%
	Eaagads Limited	43.2	41.5	4.75	6.45	0.155421687	16%
	George Williamson Kenya Ltd	142	85.8	7.5	63.7	0.742424242	74%
	Kakuzi Ltd	140	96	2.75	46.75	0.486979167	49%
	Kapchorua Tea Co Ltd	95	70	7.5	32.5	0.464285714	46%
	Limuru Tea Co Ltd	760	750	87.5	97.5	0.13	13%
	Rea Vipingo Ltd	6	8.2	0.4	-1.8	-0.2195122	-22%
	Sasini Tea & Coffee Ltd	69.8	61.7	2	10.1	0.1636953	16%
Finance & Investment	*Barclays Bank Ltd*	122.2	116	12	18.2	0.156896552	16%
	City Trust Ltd	26.1	34	2	-5.9	-0.17352941	-17%
	CFC Bank Ltd	15.6	17.4	0.67	-1.13	-0.06494253	-6%
	Diamond Trust Bank Kenya Ltd	21.1	22.1	1	0	0	0%
	Housing Finance Co (K) Ltd	16.3	15.3	1.5	2.5	0.163398693	16%
	ICDC Investments Co Ltd	41.8	35.1	3	9.7	0.276353276	28%
	Jubilee Insurance Co Ltd	30.3	31	1.75	1.05	0.033870968	3%
	Kenya Commercial Bank Ltd	61.4	79.1	8	-9.7	-0.12262958	-12%
	Nationhal Bank of Kenya Ltd	8.6	12.6	0.5	-3.5	-0.27777778	-28%
	National Industrial Credit Ltd	28.9	40.4	1.75	-9.75	-0.24133663	-24%
	Regent Undervalued Assets Africa Fund	580	580	0	0	0	0%
	Pan Africa Insurance Ltd	16.7	27.8	1.75	-9.35	-0.33633094	-34%
	Standard Chartered Bank Ltd	51.7	47.6	1.75	5.85	0.12289916	12%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed					
	A Baumann & Co Ltd	16.9	15.6	0.75	2.05	0.131410256	13%
	CMC Holdings Ltd	33	39	0.5	-5.5	-0.14102564	-14%
	Car & General (K) Ltd	12	16.1	0	-4.1	-0.25465839	-25%
	Express Kenya Ltd	28.6	60	4.4	-27	-0.45	-45%
	Kenya Airways Ltd	8	7.4	1	1.6	0.216216216	22%
	Lonhro Motors (EA) Ltd	22	39	0	-17	-0.43589744	-44%
	Marshalls (EA) Ltd	25	26.2	1	-0.2	-0.00763359	-1%
	Nation Media Group Ltd	135.8	130	2.3	8.1	0.062307692	6%
	Pearl Drycleaners Ltd	10	10.5	0	-0.5	-0.04761905	-5%
	Standard Newspapers Ltd	21.3	32	1	-9.7	-0.303125	-30%
	Tourism Promotion Services (Serena)	13.6	14	1	0.6	0.042857143	4%
	Uchumi Supermarkets Ltd	44.6	40.6	3.05	7.05	0.17364532	17%
Industrial and Allied	*Athi River Mining Ltd*	6.2	9.2	0.3	-2.7	-0.29347826	-29%
	Bamburi Cement Ltd	36	37	0.625	-0.375	-0.01013514	-1%
	British American Tobacco Ltd	71.2	65.5	6.5	12.2	0.186259542	19%
	B O C Gases Ltd	36	37	3.5	2.5	0.067567568	7%
	Carbacid Investments Ltd	74.2	50	2.2	26.4	0.528	53%
	Crown Berger Ltd	8.1	10	1.35	-0.55	-0.055	-6%
	Dunlop Kenya Ltd	18.5	20	2	0.5	0.025	3%
	EA Cables Ltd	20	29	0	-9	-0.31034483	-31%
	EA Packaging Ltd	15.6	49	0	-33.4	-0.68163265	-68%
	EA Portland Cement Ltd	17.6	20	3	0.6	0.03	3%
	Firestone East Africa Ltd	16.1	15.9	1.5	1.7	0.106918239	11%
	East Africa Breweries Ltd	68.8	48	6	26.8	0.558333333	56%
	Kenya National Mills Ltd	16.3	14.9	0.8	2.2	0.147651007	15%
	Kenya Oil Co Ltd	55	49.5	4	9.5	0.191919192	19%
	Kenya Power & Lighting Ltd	120.2	121.2	5	4	0.0330033	3%
	Total Kenya Ltd	44.9	52.5	2.6	-5	-0.0952381	-10%
	Unga Group Ltd	47	20	1.2	28.2	1.41	141%

EXPECTED RETURN-1999

SECTOR	COMPANY	p1	p0	div	p1-p0+div	E(R) pi-p0+div/p0	%
Agricultural	*Brooke Bond Kenya Limited*	104	141	2.3	-34.7	-0.24609929	-25%
	Eaagads Limited	26	43.2	1.25	-15.95	-0.36921296	-37%
	George Williamson Kenya Ltd	92	141	**2.5**	-46.5	-0.32978723	-33%
	Kakuzi Ltd	87	141	2.75	-51.25	-0.36347518	-36%
	Kapchorua Tea Co Ltd	150	95	**2.5**	57.5	0.605263158	61%
	Limuru Tea Co Ltd	650	760	60	-50	-0.06578947	-7%
	Rea Vipingo Ltd	4.8	6	0	-1.2	-0.2	-20%
	Sasini Tea & Coffee Ltd	44.9	69.8	0.5	-24.4	-0.3495702	-35%
Finance & Investment	*Barclays Bank Ltd*	103.1	126.3	10.5	-12.7	-0.10055424	-10%
	City Trust Ltd	22.1	26.1	0	-4	-0.1532567	-15%
	CFC Bank Ltd	14.3	15.6	2	0.7	0.044871795	4%
	Diamond Trust Bank Kenya Ltd	26	22	0.4	4.4	0.2	20%
	Housing Finance Co (K) Ltd	10.3	16.1	1.25	-4.55	-0.2826087	-28%
	ICDC Investments Co Ltd	51	42	2.5	11.5	0.273809524	27%
	Jubilee Insurance Co Ltd	23	30.3	1.75	-5.55	-0.18316832	-18%
	Kenya Commercial Bank Ltd	31.4	61.6	0	-30.2	-0.49025974	-49%
	National Bank of Kenya Ltd	5	8.6	0	-3.6	-0.41860465	-42%
	National Industrial Credit Ltd	26.9	30	1.75	-1.35	-0.045	-5%
	Regent Undervalued Assets Africa Fund	580	580	0	0	0	0%
	Pan Africa Insurance Ltd	26.9	16.7	0.75	10.95	0.655688623	66%
	Standard Chartered Bank Ltd	55.8	51.6	1.25	5.45	0.105620155	11%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed					
	A Baumann & Co Ltd	14.9	16.9	1.25	-0.75	-0.0443787	-4%
	CMC Holdings Ltd	30	33	0.75	-2.25	-0.06818182	-7%
	Car & General (K) Ltd	9	12	0	-3	-0.25	-25%
	Express Kenya Ltd	18.9	28.6	0	-9.7	-0.33916084	-34%
	Kenya Airways Ltd	7.8	8.1	0	-0.3	-0.03703704	-4%
	Lonhro Motors (EA) Ltd	13.3	22	0	-8.7	-0.39545455	-40%
	Marshalls (EA) Ltd	23.6	25	0	-1.4	-0.056	-6%
	Nation Media Group Ltd	100.4	137.7	1.65	-35.65	-0.25889615	-26%
	Pearl Drycleaners Ltd	3	10	0	-7	-0.7	-70%
	Standard Newspapers Ltd	9.9	21.3	0.1	-11.3	-0.53051643	-53%
	Tourism Promotion Services (Serena)	16.1	14.5	0	1.6	0.110344828	11%
	Uchumi Supermarkets Ltd	39.3	44	4.6	-0.1	-0.00227273	0%
Industrial and Allied	*Athi River Mining Ltd*	5.9	6.2	0	-0.3	-0.0483871	-5%
	Bamburi Cement Ltd	26.3	36	1.25	-8.45	-0.23472222	-23%
	British American Tobacco Ltd	64.5	71.2	7.5	0.8	0.011235955	1%
	B O C Gases Ltd	26.3	36	2.55	-7.15	-0.19861111	-20%
	Carbacid Investments Ltd	76	76.5	5	4.5	0.058823529	6%
	Crown Berger Ltd	10	8.1	2	3.9	0.481481481	48%
	Dunlop Kenya Ltd	9.8	20	0.4	-9.8	-0.49	-49%
	EA Cables Ltd	16	20	2	-2	-0.1	-10%
	EA Packaging Ltd	7	15.5	0	-8.5	-0.5483871	-55%
	EA Portland Cement Ltd	11.2	17.6	0	-6.4	-0.36363636	-36%
	Firestone East Africa Ltd	16	16.1	1.2	1.1	0.068322981	7%
	East Africa Breweries Ltd	69.9	68.8	7	8.1	0.117732558	12%
	Kenya National Mills Ltd	9.5	17	0	-7.5	-0.44117647	-44%
	Kenya Oil Co Ltd	67.8	55	0	12.8	0.232727273	23%
	Kenya Power & Lighting Ltd	92.5	124.9	8	-24.4	-0.19535629	-20%
	Total Kenya Ltd	48	49	3	2	0.040816327	4%
	Unga Group Ltd	26	47	0	-21	-0.44680851	-45%

EXPECTED RETURN-2000

SECTOR	COMPANY	p1	p0	div	p1-p0+div	p1-p0+div/p0	%
Agricultural	*Brooke Bond Kenya Limited*	97	104.7	4	-3.7	-0.035339064	-4%
	Eaagads Limited	20.5	25	0	-4.5	-0.18	-18%
	George Williamson Kenya Ltd	97	92	2.5	7.5	0.081521739	8%
	Kakuzi Ltd	55	91.5	1.4	-35.1	-0.383606557	-38%
	Kapchorua Tea Co Ltd	150	150	2.5	2.5	0.016666667	2%
	Limuru Tea Co Ltd	650	650	55	55	0.084615385	8%
	Rea Vipingo Ltd	3.1	4.95	0	-1.85	-0.373737374	-37%
	Sasini Tea & Coffee Ltd	34	44.9	2.2	-8.7	-0.19376392	-19%
Finance & Investment	*Barclays Bank Ltd*	75.5	82.95	10	2.55	0.03074141	3%
	City Trust Ltd	23.25	22	2	3.25	0.147727273	15%
	CFC Bank Ltd	10.05	11	0.67	-0.28	-0.025454545	-3%
	Diamond Trust Bank Kenya Ltd	14	26	0.4	-11.6	-0.446153846	-45%
	Housing Finance Co (K) Ltd	5.5	10.6	0.25	-4.85	-0.45754717	-46%
	ICDC Investments Co Ltd	46.5	50	3	-0.5	-0.01	-1%
	Jubilee Insurance Co Ltd	25.5	25.1	1.75	2.15	0.085657371	9%
	Kenya Commercial Bank Ltd	25.5	21.8	0	3.7	0.169724771	17%
	National Bank of Kenya Ltd	3.15	5	0	-1.85	-0.37	-37%
	National Industrial Credit Ltd	17.75	27	1.8	-7.45	-0.275925926	-28%
	Pan Africa Insurance Ltd	11	26.5	0	-15.5	-0.58490566	-58%
	Standard Chartered Bank Ltd	49.5	37.5	4.4	16.4	0.437333333	44%
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for a full year					
	A Baumann & Co Ltd	9.5	15	1	-4.5	-0.3	-30%
	CMC Holdings Ltd	15.25	30	0	-14.75	-0.491666667	-49%
	Car & General (K) Ltd	10	9	0	1	0.111111111	11%
	Express Kenya Ltd	17.9	18.9	0	-1	-0.052910053	-5%
	Kenya Airways Ltd	9	7.85	1.25	2.4	0.305732484	31%
	Marshalls (EA) Ltd	18.6	23.6	0	-5	-0.211864407	-21%
	Nation Media Group Ltd	69	101	1.75	-30.25	-0.29950495	-30%
	Pearl Drycleaners Ltd	2.05	3	0	-0.95	-0.316666667	-32%
	Standard Newspapers Ltd	15.8	11	0	4.8	0.436363636	44%
	Tourism Promotion Services (Serena)	7.15	16.2	1	-8.05	-0.49691358	-50%
	Uchumi Supermarkets Ltd	49	40.2	3	11.8	0.293532338	29%
Industrial and Allied	*Athi River Mining Ltd*	4	5.6	0	-1.6	-0.285714286	-29%
	Bamburi Cement Ltd	33.75	26	0.75	8.5	0.326923077	33%
	British American Tobacco Ltd	60.5	57	6.25	9.75	0.171052632	17%
	B O C Gases Ltd	47.25	64	3.55	-13.2	-0.20625	-21%
	Carbacid Investments Ltd	40	56	2.75	-13.25	-0.236607143	-24%
	Crown Berger Ltd	9	11.05	1	-1.05	-0.095022624	-10%
	Dunlop Kenya Ltd	6.4	9.8	0.4	-3	-0.306122449	-31%
	EA Cables Ltd	9.25	12.95	4.5	0.8	0.061776062	6%
	EA Packaging Ltd	7.5	12.5	0	-5	-0.4	-40%
	EA Portland Cement Ltd	11.7	11.2	0	0.5	0.044642857	4%
	Firestone East Africa Ltd	11.5	15.6	1	-3.1	-0.198717949	-20%
	East Africa Breweries Ltd	74.5	65.95	7.5	16.05	0.243366187	24%
	Kenya National Mills Ltd	7	9.5	0	-2.5	-0.263157895	-26%
	Kenya Oil Co Ltd	73	67.75	7.5	12.75	0.188191882	19%
	Kenya Power & Lighting Ltd	40	92.2	2	-50.2	-0.544468547	-54%
	Total Kenya Ltd	55	48.25	3.4	10.15	0.210362694	21%
	Unga Group Ltd	13.9	22.85	0	-8.95	-0.391684902	-39%

APPENDIX 4 – ESTIMATION OF EXERCISE PRICES

ESTIMATION OF EXERCISE PRICES-January-June 1997

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5	V*SQRT(0.5
	Brooke Bond Kenya Limited	149	-26%	14%	5.003946	-0.26	0.14	0.010183	-0.135091627	4.868854678	0.707107	0.10091211
	Eaagads Limited	27.25	61%	51%	3.305054	0.61	0.51	0.13212	0.238939993	3.543993514	0.707107	0.36348317
	George Williamson Kenya Ltd	73.5	19%	68%	4.297285	0.19	0.68	0.231423	-0.020711644	4.276573763	0.707107	0.48106474
	Kakuzi Ltd	98	0%	51%	4.584967	0.00	0.51	0.128615	-0.06430757	4.520659909	0.707107	0.35862953
	Kapchorua Tea Co Ltd	70	2%	0%	4.248495	0.02	0.00	0	0.01	4.258495242	0.707107	0
	Limuru Tea Co Ltd	1300	-40%	31%	7.17012	-0.40	0.31	0.04783	-0.223914878	6.946204665	0.707107	0.21870015
	Rea Vipingo Ltd	11	-3%	27%	2.397895	-0.03	0.27	0.035731	-0.032865645	2.365029627	0.707107	0.18902722
	Sasini Tea & Coffee Ltd	60	62%	38%	4.094345	0.62	0.38	0.070709	0.274645644	4.368990207	0.707107	0.2659111
Finance & Investment	*Barclays Bank Ltd*	115	9%	17%	4.744932	0.09	0.17	0.014138	0.037930967	4.782863096	0.707107	0.1189036
	City Trust Ltd	33	8%	14%	3.496508	0.08	0.14	0.010112	0.034944042	3.531451603	0.707107	0.10055803
	CFC Bank Ltd	22.75	-21%	38%	3.124565	-0.21	0.38	0.072344	-0.141171887	2.983393259	0.707107	0.26896798
	Diamond Trust Bank Kenya Ltd	36.5	-40%	25%	3.597312	-0.40	0.25	0.031605	-0.215802708	3.381509552	0.707107	0.17777912
	Housing Finance Co (K) Ltd	24	-18%	14%	3.178054	-0.18	0.14	0.009711	-0.094855274	3.083198556	0.707107	0.09854212
	ICDC Investments Co Ltd	40	-8%	76%	3.688879	-0.08	0.76	0.28813	-0.184065135	3.504814319	0.707107	0.53677767
	Jubilee Insurance Co Ltd	38.5	-2%	28%	3.650658	-0.02	0.28	0.039396	-0.029698117	3.620960124	0.707107	0.19848485
	Kenya Commercial Bank Ltd	90	-7%	34%	4.49981	-0.07	0.34	0.056695	-0.06334748	4.43646219	0.707107	0.23810704
	National Bank of Kenya Ltd	16	-16%	31%	2.772589	-0.16	0.31	0.047878	-0.103938955	2.668649768	0.707107	0.21881021
	National Industrial Credit Ltd	50	4%	24%	3.912023	0.04	0.24	0.028987	0.005506424	3.917529429	0.707107	0.17025614
	Regent Undervalued Assets Africa Func	0	0%	0%	#NUM!	0.00	0.00	0	0	#NUM!	0.707107	0
	Pan Africa Insurance Ltd	51	-14%	34%	3.931826	-0.14	0.34	0.05898	-0.099489821	3.832335812	0.707107	0.24285724
	Standard Chartered Bank Ltd	54	-8%	13%	3.988984	-0.08	0.13	0.00811	-0.044054804	3.944929243	0.707107	0.09005336
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed										
	A Baumann & Co Ltd	33	-49%	57%	3.496508	-0.49	0.57	0.161656	-0.325827805	3.170679757	0.707107	0.40206419
	CMC Holdings Ltd	70	15%	38%	4.248495	0.15	0.38	0.070908	0.039546188	4.28804143	0.707107	0.26628486
	Car & General (K) Ltd	20	-20%	23%	2.995732	-0.20	0.23	0.026299	-0.113149387	2.882582887	0.707107	0.16216897
	Express Kenya Ltd	76	-17%	19%	4.330733	-0.17	0.19	0.017367	-0.09368331	4.237050031	0.707107	0.13178247
	Kenya Airways Ltd	8.5	0%	13%	2.140066	0.00	0.13	0.009053	-0.004526464	2.135539699	0.707107	0.09514688
	Lonhro Motors (EA) Ltd	128	-70%	120%	4.85203	-0.70	1.20	0.721872	-0.710936047	4.141094217	0.707107	0.84963056
	Marshalls (EA) Ltd	47.5	-5%	118%	3.86073	-0.05	1.18	0.691898	-0.370948912	3.489780799	0.707107	0.83180396
	Nation Media Group Ltd	113	19%	56%	4.727388	0.19	0.56	0.15473	0.017635006	4.745022825	0.707107	0.39335733
	Pearl Drycleaners Ltd	10	10%	18%	2.302585	0.10	0.18	0.01568	0.042159992	2.344745085	0.707107	0.12521987
	Standard Newspapers Ltd	9.05	497%	70%	2.202765	4.97	0.70	0.24538	2.362309806	4.565074564	0.707107	0.49535885
	Tourism Promotion Services (Serena)	Not listed for a full year										
	Uchumi Supermarkets Ltd	39.75	7%	45%	3.68261	0.07	0.45	0.100492	-0.015245777	3.667364064	0.707107	0.31700403
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full six months										
	Bamburi Cement Ltd	40	-7%	45%	3.688879	-0.07	0.45	0.102366	-0.086183002	3.602696453	0.707107	0.31994688
	British American Tobacco Ltd	83	-33%	30%	4.418841	-0.33	0.30	0.044993	-0.187496297	4.231344311	0.707107	0.21211458
	B O C Gases Ltd	70	-1%	110%	4.248495	-0.01	1.10	0.602065	-0.306032613	3.942462629	0.707107	0.77592862
	Carbacid Investments Ltd	82	-17%	19%	4.406719	-0.17	0.19	0.01846	-0.094230193	4.312489055	0.707107	0.135869
	Crown Berger Ltd	12.5	-12%	37%	2.525729	-0.12	0.37	0.069541	-0.094770473	2.430958171	0.707107	0.26370617
	Dunlop Kenya Ltd	275	-64%	161%	5.616771	-0.64	1.61	1.297571	-0.968785537	4.647985561	0.707107	1.13910977
	EA Cables Ltd	37	-15%	28%	3.610918	-0.15	0.28	0.038986	-0.094493223	3.51642469	0.707107	0.19744985
	EA Packaging Ltd	70	-30%	49%	4.248495	-0.30	0.49	0.121778	-0.210888979	4.037606263	0.707107	0.34896699
	EA Portland Cement Ltd	24.5	-16%	58%	3.198673	-0.16	0.58	0.169536	-0.16476789	3.033905228	0.707107	0.41174723
	Firestone East Africa Ltd	30	-14%	35%	3.401197	-0.14	0.35	0.06127	-0.100635089	3.300562292	0.707107	0.24752814
	East Africa Breweries Ltd	52.5	5%	25%	3.960813	0.05	0.25	0.032234	0.008882985	3.969696155	0.707107	0.17953838
	Kenya National Mills Ltd	34.75	16%	34%	3.54818	0.16	0.34	0.058594	0.050702835	3.598882407	0.707107	0.24206266
	Kenya Oil Co Ltd	71	-27%	22%	4.26268	-0.27	0.22	0.023692	-0.146846091	4.115833786	0.707107	0.15392265
	Kenya Power & Lighting Ltd	90	109%	47%	4.49981	1.09	0.47	0.112342	0.488829025	4.988638695	0.707107	0.33517451
	Total Kenya Ltd	94	-41%	57%	4.543295	-0.41	0.57	0.160083	-0.285041523	4.25825326	0.707107	0.40010379
	Unga Group Ltd	120	8%	39%	4.787492	0.08	0.39	0.07513	0.002434832	4.789926575	0.707107	0.27409913

ESTIMATION OF EXERCISE PRICES-JULY-DECEMBER 1997

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT)O.5	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	124	-26%	14%	4.820282	-0.26	0.14	0.010183	-0.135091627	4.685189938	0.707107	0.10091211
	Eaagads Limited	26	61%	51%	3.258097	0.61	0.51	0.13212	0.238939993	3.497036531	0.707107	0.36348317
	George Williamson Kenya Ltd	70	19%	68%	4.248495	0.19	0.68	0.231423	-0.020711644	4.227783599	0.707107	0.48106474
	Kakuzi Ltd	102	0%	51%	4.624973	0.00	0.51	0.128615	-0.06430757	4.560665244	0.707107	0.35862953
	Kapchorua Tea Co Ltd	70	2%	0%	4.248495	0.02	0.00	0	0.01	4.258495242	0.707107	0
	Limuru Tea Co Ltd	1000	-40%	31%	6.907755	-0.40	0.31	0.04783	-0.223914878	6.683840401	0.707107	0.21870015
	Rea Vipingo Ltd	9.3	-3%	27%	2.230014	-0.03	0.27	0.035731	-0.032865645	2.197148755	0.707107	0.18902722
	Sasini Tea & Coffee Ltd	85	62%	38%	4.442651	0.62	0.38	0.070709	0.274645644	4.717296901	0.707107	0.2659111
Finance & Investment	*Barclays Bank Ltd*	110	9%	17%	4.70048	0.09	0.17	0.014138	0.037930967	4.738411333	0.707107	0.1189036
	City Trust Ltd	35.75	8%	14%	3.57655	0.08	0.14	0.010112	0.034944042	3.611494311	0.707107	0.10055803
	CFC Bank Ltd	26	-21%	38%	3.258097	-0.21	0.38	0.072344	-0.141171887	3.116924651	0.707107	0.26896798
	Diamond Trust Bank Kenya Ltd	30.25	-40%	25%	3.409496	-0.40	0.25	0.031605	-0.215802708	3.193693476	0.707107	0.17777912
	Housing Finance Co (K) Ltd	23.5	-18%	14%	3.157	-0.18	0.14	0.009711	-0.094855274	3.062145147	0.707107	0.09854212
	ICDC Investments Co Ltd	50	-8%	76%	3.912023	-0.08	0.76	0.28813	-0.184065135	3.72795787	0.707107	0.53677767
	Jubilee Insurance Co Ltd	41.5	-2%	28%	3.725693	-0.02	0.28	0.039396	-0.029698117	3.69599531	0.707107	0.19848485
	Kenya Commercial Bank Ltd	115	-7%	34%	4.744932	-0.07	0.34	0.056695	-0.06334748	4.681584648	0.707107	0.23810704
	National Bank of Kenya Ltd	15.2	-16%	31%	2.721295	-0.16	0.31	0.047878	-0.103938955	2.617356473	0.707107	0.21881021
	National Industrial Credit Ltd	60	4%	24%	4.094345	0.04	0.24	0.028987	0.005506424	4.099850986	0.707107	0.17025614
	Regent Undervalued Assets Africa Func	580	0%	0%	6.363028	0.00	0.00	0	0	6.363028104	0.707107	0
	Pan Africa Insurance Ltd	63	-14%	34%	4.143135	-0.14	0.34	0.05898	-0.099489821	4.043644906	0.707107	0.24285724
	Standard Chartered Bank Ltd	47	-8%	13%	3.850148	-0.08	0.13	0.00811	-0.044054804	3.806092798	0.707107	0.09005336
Commercial & Services	*Africa Lakes Corporation Plc*											
	A Baumann & Co Ltd	26	-49%	57%	3.258097	-0.49	0.57	0.161656	-0.325827805	2.932268734	0.707107	0.40206419
	CMC Holdings Ltd	82.5	15%	38%	4.412798	0.15	0.38	0.070908	0.039546188	4.452344481	0.707107	0.26628486
	Car & General (K) Ltd	17	-20%	23%	2.833213	-0.20	0.23	0.026299	-0.113149387	2.720063957	0.707107	0.16216897
	Express Kenya Ltd	71	-17%	19%	4.26268	-0.17	0.19	0.017367	-0.09368331	4.168996567	0.707107	0.13178247
	Kenya Airways Ltd	8.2	0%	13%	2.104134	0.00	0.13	0.009053	-0.004526464	2.09960769	0.707107	0.09514688
	Lonhro Motors (EA) Ltd	82.5	-70%	120%	4.412798	-0.70	1.20	0.721872	-0.710936047	3.701862247	0.707107	0.84963056
	Marshalls (EA) Ltd	77	-5%	118%	4.343805	-0.05	1.18	0.691898	-0.370948912	3.97285651	0.707107	0.83180396
	Nation Media Group Ltd	116	19%	56%	4.75359	0.19	0.56	0.15473	0.017635006	4.771225197	0.707107	0.39335733
	Pearl Drycleaners Ltd	10.25	10%	18%	2.327278	0.10	0.18	0.01568	0.042159992	2.369437698	0.707107	0.12521987
	Standard Newspapers Ltd	25	497%	70%	3.218876	4.97	0.70	0.24538	2.362309806	5.581185631	0.707107	0.49535885
	Tourism Promotion Services (Serena)	Not listed for the full year										
	Uchumi Supermarkets Ltd	40	7%	45%	3.688879	0.07	0.45	0.100492	-0.015245777	3.673633677	0.707107	0.31700403
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full year										
	Bamburi Cement Ltd	37.5	-7%	45%	3.624341	-0.07	0.45	0.102366	-0.086183002	3.538157931	0.707107	0.31994688
	British American Tobacco Ltd	61	-33%	30%	4.110874	-0.33	0.30	0.044993	-0.187496297	3.923377568	0.707107	0.21211458
	B O C Gases Ltd	76	-1%	110%	4.330733	-0.01	1.10	0.602065	-0.306032613	4.024700727	0.707107	0.77592862
	Carbacid Investments Ltd	84	-17%	19%	4.430817	-0.17	0.19	0.01846	-0.094230193	4.336586606	0.707107	0.135869
	Crown Berger Ltd	10.5	-12%	37%	2.351375	-0.12	0.37	0.069541	-0.094770473	2.256604784	0.707107	0.26370617
	Dunlop Kenya Ltd	270	-64%	161%	5.598422	-0.64	1.61	1.297571	-0.968785537	4.629636422	0.707107	1.13910977
	EA Cables Ltd	33	-15%	28%	3.496508	-0.15	0.28	0.038986	-0.094493223	3.402014339	0.707107	0.19744985
	EA Packaging Ltd	67	-30%	49%	4.204693	-0.30	0.49	0.121778	-0.210888979	3.993803641	0.707107	0.34896699
	EA Portland Cement Ltd	44	-16%	58%	3.78419	-0.16	0.58	0.169536	-0.16476789	3.619421744	0.707107	0.41174723
	Firestone East Africa Ltd	28	-14%	35%	3.332205	-0.14	0.35	0.06127	-0.100635089	3.231569421	0.707107	0.24752814
	East Africa Breweries Ltd	60	5%	25%	4.094345	0.05	0.25	0.032234	0.008882985	4.103227547	0.707107	0.17953838
	Kenya National Mills Ltd	47	16%	34%	3.850148	0.16	0.34	0.058594	0.050702835	3.900850437	0.707107	0.24206266
	Kenya Oil Co Ltd	70	-27%	22%	4.248495	-0.27	0.22	0.023692	-0.146846091	4.101649151	0.707107	0.15392265
	Kenya Power & Lighting Ltd	171	109%	47%	5.141664	1.09	0.47	0.112342	0.488829025	5.630492581	0.707107	0.33517451
	Total Kenya Ltd	84.5	-41%	57%	4.436752	-0.41	0.57	0.160083	-0.285041523	4.151710012	0.707107	0.40010379
	Unga Group Ltd	150	8%	39%	5.010635	0.08	0.39	0.07513	0.002434832	5.013070127	0.707107	0.27409913

ESTIMATION OF EXERCISE PRICES-January-June 1998

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5)	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	110	28%	23%	4.70048	0.28	0.23	0.026861	0.128842219	4.829322585	0.7071068	0.1626931
	Eaagads Limited	41.5	16%	30%	3.725693	0.16	0.30	0.04418	0.055620654	3.781314081	0.7071068	0.21019129
	George Williamson Kenya Ltd	85.8	74%	23%	4.452019	0.74	0.23	0.02625	0.358086972	4.810105978	0.7071068	0.16201944
	Kakuzi Ltd	96	49%	26%	4.564348	0.49	0.26	0.034974	0.226002555	4.790350746	0.7071068	0.18701352
	Kapchorua Tea Co Ltd	70	46%	22%	4.248495	0.46	0.22	0.025142	0.219571891	4.468067133	0.7071068	0.15856207
	Limuru Tea Co Ltd	750	13%	2%	6.620073	0.13	0.02	0.00017	0.064915191	6.684988397	0.7071068	0.01302376
	Rea Vipingo Ltd	8.2	-22%	16%	2.104134	-0.22	0.16	0.01246	-0.115985892	1.988148262	0.7071068	0.11162253
	Sasini Tea & Coffee Ltd	61.7	16%	44%	4.122284	0.16	0.44	0.097824	0.032935583	4.155219514	0.7071068	0.3127685
Finance & Investment	*Barclays Bank Ltd*	116	16%	40%	4.75359	0.16	0.40	0.07927	0.03881322	4.792403411	0.7071068	0.28154948
	City Trust Ltd	34	-17%	77%	3.526361	-0.17	0.77	0.29645	-0.234989706	3.291370819	0.7071068	0.54447222
	CFC Bank Ltd	17.4	-6%	24%	2.85647	-0.06	0.24	0.0288	-0.046871264	2.809598942	0.7071068	0.16970563
	Diamond Trust Bank Kenya Ltd	22.1	0%	20%	3.095578	0.00	0.20	0.02	-0.01	3.085577609	0.7071068	0.14142136
	Housing Finance Co (K) Ltd	15.3	16%	32%	2.727853	0.16	0.32	0.0512	0.056099346	2.783952175	0.7071068	0.22627417
	ICDC Investments Co Ltd	35.1	28%	37%	3.558201	0.28	0.37	0.06845	0.103951638	3.662152769	0.7071068	0.26162951
	Jubilee Insurance Co Ltd	31	3%	19%	3.433987	0.03	0.19	0.01805	0.007910484	3.441897688	0.7071068	0.13435029
	Kenya Commercial Bank Ltd	79.1	-12%	23%	4.370713	-0.12	0.23	0.02645	-0.074539791	4.296173083	0.7071068	0.16263456
	National Bank of Kenya Ltd	12.6	-28%	60%	2.533697	-0.28	0.60	0.18	-0.228888889	2.304807925	0.7071068	0.42426407
	National Industrial Credit Ltd	40.4	-24%	54%	3.69883	-0.24	0.54	0.1458	-0.193568317	3.505261468	0.7071068	0.38183766
	Regent Undervalued Assets Africa Func	580	0%	0%	6.363028	0.00	0.00	0	0	6.363028104	0.7071068	0
	Pan Africa Insurance Ltd	27.8	-34%	18%	3.325036	-0.34	0.18	0.0162	-0.176265468	3.148770553	0.7071068	0.12727922
	Standard Chartered Bank Ltd	47.6	12%	34%	3.862833	0.12	0.34	0.0578	0.03254958	3.895382341	0.7071068	0.24041631
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed										
	A Baumann & Co Ltd	15.6	13%	11%	2.747271	0.13	0.11	0.006169	0.062620438	2.809891353	0.7071068	0.0785454
	CMC Holdings Ltd	39	-14%	29%	3.663562	-0.14	0.29	0.04205	-0.091537821	3.572023826	0.7071068	0.20506097
	Car & General (K) Ltd	16.1	-25%	43%	2.778819	-0.25	0.43	0.09245	-0.173554193	2.605265079	0.7071068	0.30405592
	Express Kenya Ltd	60	-45%	36%	4.094345	-0.45	0.36	0.0648	-0.2574	3.836944562	0.7071068	0.25455844
	Kenya Airways Ltd	7.4	22%	25%	2.00148	0.22	0.25	0.03125	0.092483108	2.093963108	0.7071068	0.1767767
	Lonhro Motors (EA) Ltd	39	-44%	25%	3.663562	-0.44	0.25	0.03125	-0.233573718	3.429987928	0.7071068	0.1767767
	Marshalls (EA) Ltd	26.2	-1%	17%	3.265759	-0.01	0.17	0.01445	-0.011041794	3.254717617	0.7071068	0.12020815
	Nation Media Group Ltd	130	6%	81%	4.867534	0.06	0.81	0.326759	-0.132225847	4.735308604	0.7071068	0.57162871
	Pearl Drycleaners Ltd	10.5	-5%	4%	2.351375	-0.05	0.04	0.0008	-0.024209524	2.327165733	0.7071068	0.02828427
	Standard Newspapers Ltd	32	-30%	92%	3.465736	-0.30	0.92	0.4232	-0.3631625	3.102573403	0.7071068	0.65053824
	Tourism Promotion Services (Serena)	14	4%	31%	2.639057	0.04	0.31	0.04805	-0.002596429	2.636460901	0.7071068	0.2192031
	Uchumi Supermarkets Ltd	40.6	17%	31%	3.703768	0.17	0.31	0.04805	0.06279766	3.766565727	0.7071068	0.2192031
Industrial and Allied	*Athi River Mining Ltd*	9.2	-29%	48%	2.219203	-0.29	0.48	0.1152	-0.20433913	2.014864354	0.7071068	0.33941125
	Bamburi Cement Ltd	37	-1%	46%	3.610918	-0.01	0.46	0.1058	-0.057967568	3.552950345	0.7071068	0.32526912
	British American Tobacco Ltd	65.5	19%	9%	4.18205	0.19	0.09	0.00405	0.091104771	4.273154914	0.7071068	0.06363961
	B O C Gases Ltd	37	7%	46%	3.610918	0.07	0.46	0.1058	-0.019116216	3.591801696	0.7071068	0.32526912
	Carbacid Investments Ltd	50	53%	34%	3.912023	0.53	0.34	0.0578	0.2351	4.147123005	0.7071068	0.24041631
	Crown Berger Ltd	10	-6%	44%	2.302585	-0.06	0.44	0.0968	-0.0759	2.226685093	0.7071068	0.31112698
	Dunlop Kenya Ltd	20	3%	72%	2.995732	0.03	0.72	0.2592	-0.1171	2.878632274	0.7071068	0.50911688
	EA Cables Ltd	29	-31%	29%	3.367296	-0.31	0.29	0.04205	-0.176197414	3.191098416	0.7071068	0.20506097
	EA Packaging Ltd	49	-68%	43%	3.89182	-0.68	0.43	0.09245	-0.387041327	3.504778972	0.7071068	0.30405592
	EA Portland Cement Ltd	20	3%	25%	2.995732	0.03	0.25	0.03125	-0.000625	2.995107274	0.7071068	0.1767767
	Firestone East Africa Ltd	15.9	11%	29%	2.766319	0.11	0.29	0.04205	0.032434119	2.798753229	0.7071068	0.20506097
	East Africa Breweries Ltd	48	56%	36%	3.871201	0.56	0.36	0.0648	0.246766667	4.117967678	0.7071068	0.25455844
	Kenya National Mills Ltd	14.9	15%	58%	2.701361	0.15	0.58	0.1682	-0.010274497	2.691086716	0.7071068	0.41012193
	Kenya Oil Co Ltd	49.5	19%	22%	3.901973	0.19	0.22	0.0242	0.083859596	3.985832266	0.7071068	0.15556349
	Kenya Power & Lighting Ltd	121.2	3%	27%	4.797442	0.03	0.27	0.03645	-0.00172335	4.795718724	0.7071068	0.19091883
	Total Kenya Ltd	52.5	-10%	39%	3.960813	-0.10	0.39	0.07605	-0.085644048	3.875169122	0.7071068	0.27577164
	Unga Group Ltd	20	141%	95%	2.995732	1.41	0.95	0.45125	0.479375	3.475107274	0.7071068	0.67175144

ESTIMATION OF EXERCISE PRICES-JULY-DEC 1998

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5)	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	131.7	28%	23%	4.880527	0.28	0.23	0.026861	0.128842219	5.009368828	0.7071068	0.1626331
	Eaagads Limited	37	16%	30%	3.610918	0.16	0.30	0.04418	0.055620654	3.666538567	0.7071068	0.21019129
	George Williamson Kenya Ltd	141	74%	23%	4.94876	0.74	0.23	0.02625	0.358086972	5.306846862	0.7071068	0.16201944
	Kakuzi Ltd	141.9	49%	26%	4.955123	0.49	0.26	0.034974	0.226002555	5.181125139	0.7071068	0.18701352
	Kapchorua Tea Co Ltd	75.5	46%	22%	4.324133	0.46	0.22	0.025142	0.219571891	4.543704548	0.7071068	0.15856207
	Limuru Tea Co Ltd	755	13%	2%	6.626718	0.13	0.02	0.00017	0.064915191	6.69163294	0.7071068	0.01302376
	Rea Vipingo Ltd	6.4	-22%	16%	1.856298	-0.22	0.16	0.01246	-0.115985892	1.740312098	0.7071068	0.11162253
	Sasini Tea & Coffee Ltd	75.1	16%	44%	4.318821	0.16	0.44	0.097824	0.032935583	4.351756142	0.7071068	0.3127685
Finance & Investment	*Barclays Bank Ltd*	101.5	16%	40%	4.620059	0.16	0.40	0.07927	0.03881322	4.658872019	0.7071068	0.28154948
	City Trust Ltd	31.6	-17%	77%	3.453157	-0.17	0.77	0.29645	-0.234989706	3.218167415	0.7071068	0.54447222
	CFC Bank Ltd	16.9	-6%	24%	2.827314	-0.06	0.24	0.0288	-0.046871264	2.780442358	0.7071068	0.16970563
	Diamond Trust Bank Kenya Ltd	22	0%	20%	3.091042	0.00	0.20	0.02	-0.01	3.081042453	0.7071068	0.14142136
	Housing Finance Co (K) Ltd	16	16%	32%	2.772589	0.16	0.32	0.0512	0.056099346	2.828688069	0.7071068	0.22627417
	ICDC Investments Co Ltd	39.1	28%	37%	3.666122	0.28	0.37	0.06845	0.103951638	3.770074105	0.7071068	0.26162951
	Jubilee Insurance Co Ltd	30.2	3%	19%	3.407842	0.03	0.19	0.01805	0.007910484	3.415752408	0.7071068	0.13435029
	Kenya Commercial Bank Ltd	70	-12%	23%	4.248495	-0.12	0.23	0.02645	-0.074539791	4.173955451	0.7071068	0.16263456
	National Bank of Kenya Ltd	12.8	-28%	60%	2.549445	-0.28	0.60	0.18	-0.228888889	2.320556282	0.7071068	0.42426407
	National Industrial Credit Ltd	33.1	-24%	54%	3.499533	-0.24	0.54	0.1458	-0.193568317	3.305964966	0.7071068	0.38183766
	Regent Undervalued Assets Africa Func	580	0%	0%	6.363028	0.00	0.00	0	0	6.363028104	0.7071068	0
	Pan Africa Insurance Ltd	20	-34%	18%	2.995732	-0.34	0.18	0.0162	-0.176265468	2.819466806	0.7071068	0.12727922
	Standard Chartered Bank Ltd	42.1	12%	34%	3.740048	0.12	0.34	0.0578	0.03254958	3.772597321	0.7071068	0.24041631
Commercial & Services	*Africa Lakes Corporation Plc*											
	A Baumann & Co Ltd	15.5	13%	11%	2.74084	0.13	0.11	0.006169	0.062620438	2.803460462	0.7071068	0.0785454
	CMC Holdings Ltd	35	-14%	29%	3.555348	-0.14	0.29	0.04205	-0.091537821	3.463810241	0.7071068	0.20506097
	Car & General (K) Ltd	11.1	-25%	43%	2.406945	-0.25	0.43	0.09245	-0.173554193	2.233390916	0.7071068	0.30405592
	Express Kenya Ltd	30	-45%	36%	3.401197	-0.45	0.36	0.0648	-0.2574	3.143797382	0.7071068	0.25455844
	Kenya Airways Ltd	7	22%	25%	1.94591	0.22	0.25	0.03125	0.092483108	2.038393257	0.7071068	0.1767767
	Lonhro Motors (EA) Ltd	26.3	-44%	25%	3.269569	-0.44	0.25	0.03125	-0.233573718	3.035995221	0.7071068	0.1767767
	Marshalls (EA) Ltd	28.3	-1%	17%	3.342862	-0.01	0.17	0.01445	-0.011041794	3.331820011	0.7071068	0.12020815
	Nation Media Group Ltd	113.2	6%	81%	4.729156	0.06	0.81	0.326759	-0.132225847	4.596930319	0.7071068	0.57162871
	Pearl Drycleaners Ltd	10.3	-5%	4%	2.332144	-0.05	0.04	0.0008	-0.024209524	2.307934371	0.7071068	0.02828427
	Standard Newspapers Ltd	29.9	-30%	92%	3.397858	-0.30	0.92	0.4232	-0.3631625	3.03469598	0.7071068	0.65053824
	Tourism Promotion Services (Serena)	13	4%	31%	2.564949	0.04	0.31	0.04805	-0.002596429	2.562352929	0.7071068	0.2192031
	Uchumi Supermarkets Ltd	45.5	17%	31%	3.817712	0.17	0.31	0.04805	0.06279766	3.880509986	0.7071068	0.2192031
Industrial and Allied	*Athi River Mining Ltd*	9	-29%	48%	2.197225	-0.29	0.48	0.1152	-0.20433913	1.992885447	0.7071068	0.33941125
	Bamburi Cement Ltd	35.1	-1%	46%	3.558201	-0.01	0.46	0.1058	-0.057967568	3.500233563	0.7071068	0.32526912
	British American Tobacco Ltd	67.5	19%	9%	4.212128	0.19	0.09	0.00405	0.091104771	4.303232369	0.7071068	0.06363961
	B O C Gases Ltd	35.1	7%	46%	3.558201	0.07	0.46	0.1058	-0.019116216	3.539084914	0.7071068	0.32526912
	Carbacid Investments Ltd	44.9	53%	34%	3.804438	0.53	0.34	0.0578	0.2351	4.039537795	0.7071068	0.24041631
	Crown Berger Ltd	9.4	-6%	44%	2.24071	-0.06	0.44	0.0968	-0.0759	2.164809689	0.7071068	0.31112698
	Dunlop Kenya Ltd	30.8	3%	72%	3.427515	0.03	0.72	0.2592	-0.1171	3.31041469	0.7071068	0.50911688
	EA Cables Ltd	22.1	-31%	29%	3.095578	-0.31	0.29	0.04205	-0.176197414	2.919380195	0.7071068	0.20506097
	EA Packaging Ltd	20	-68%	43%	2.995732	-0.68	0.43	0.09245	-0.387041327	2.608690947	0.7071068	0.30405592
	EA Portland Cement Ltd	22.1	3%	25%	3.095578	0.03	0.25	0.03125	-0.000625	3.094952609	0.7071068	0.1767767
	Firestone East Africa Ltd	17.1	11%	29%	2.839078	0.11	0.29	0.04205	0.032434119	2.871512583	0.7071068	0.20506097
	East Africa Breweries Ltd	54.8	56%	36%	4.00369	0.56	0.36	0.0648	0.246766667	4.250456861	0.7071068	0.25455844
	Kenya National Mills Ltd	24.3	15%	58%	3.190476	0.15	0.58	0.1682	-0.010274497	3.180201854	0.7071068	0.41012193
	Kenya Oil Co Ltd	49.5	19%	22%	3.901973	0.19	0.22	0.0242	0.083859596	3.985832266	0.7071068	0.15556349
	Kenya Power & Lighting Ltd	129.6	3%	27%	4.864453	0.03	0.27	0.03645	-0.00172335	4.862729434	0.7071068	0.19091883
	Total Kenya Ltd	41.4	-10%	39%	3.723281	-0.10	0.39	0.07605	-0.085644048	3.637636833	0.7071068	0.27577164
	Unga Group Ltd	58.8	141%	95%	4.074142	1.41	0.95	0.45125	0.479375	4.553516855	0.7071068	0.67175144

ESTIMATION OF EXERCISE PRICES-January-June 1999

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	141	-25%	39%	4.94876	-0.25	0.39	0.076228	-0.161163508	4.787596383	0.707107	0.276093688
	Eaagads Limited	43.2	-37%	60%	3.76584	-0.37	0.60	0.18184	-0.275526404	3.490314091	0.707107	0.426426835
	George Williamson Kenya Ltd	141	-33%	22%	4.94876	-0.33	0.22	0.024888	-0.177337789	4.771422101	0.707107	0.157760403
	Kakuzi Ltd	141	-36%	27%	4.94876	-0.36	0.27	0.035396	-0.199435472	4.749324418	0.707107	0.188137627
	Kapchorua Tea Co Ltd	95	61%	24%	4.553877	0.61	0.24	0.027623	0.288820271	4.842697162	0.707107	0.166200531
	Limuru Tea Co Ltd	760	-7%	16%	6.633318	-0.07	0.16	0.012222	-0.03900576	6.594312673	0.707107	0.110553367
	Rea Vipingo Ltd	6	-20%	20%	1.791759	-0.20	0.20	0.020108	-0.110053819	1.681705651	0.707107	0.141801401
	Sasini Tea & Coffee Ltd	69.8	-35%	27%	4.245634	-0.35	0.27	0.036091	-0.192830584	4.052803426	0.707107	0.189976229
Finance & Investment	*Barclays Bank Ltd*	126.3	-10%	20%	4.83866	-0.10	0.20	0.02	-0.060277118	4.778382911	0.707107	0.141421356
	City Trust Ltd	26.1	-15%	14%	3.261935	-0.15	0.14	0.0098	-0.081528352	3.180406962	0.707107	0.098994949
	CFC Bank Ltd	15.6	4%	43%	2.747271	0.04	0.43	0.09245	-0.023789103	2.723481812	0.707107	0.304055916
	Diamond Trust Bank Kenya Ltd	22	20%	25%	3.091042	0.20	0.25	0.03125	0.084375	3.175417453	0.707107	0.176776695
	Housing Finance Co (K) Ltd	16.1	-28%	28%	2.778819	-0.28	0.28	0.0392	-0.160904348	2.617914924	0.707107	0.197989899
	ICDC Investments Co Ltd	42	27%	8%	3.73767	0.27	0.08	0.0032	0.135304762	3.87297438	0.707107	0.056568542
	Jubilee Insurance Co Ltd	30.3	-18%	23%	3.411148	-0.18	0.23	0.02645	-0.104809158	3.306338554	0.707107	0.16263456
	Kenya Commercial Bank Ltd	61.6	-49%	23%	4.120662	-0.49	0.23	0.02645	-0.25835487	3.862307	0.707107	0.16263456
	National Bank of Kenya Ltd	8.6	-42%	29%	2.151762	-0.42	0.29	0.04205	-0.230327326	1.921434878	0.707107	0.205060967
	National Industrial Credit Ltd	30	-5%	14%	3.401197	-0.05	0.14	0.0098	-0.0274	3.373797382	0.707107	0.098994949
	Regent Undervalued Assets Africa Fund	580	0%	-1%	6.363028	0.00	-0.01	5.94E-05	-2.97025E-05	6.362998401	0.707107	-0.007707464
	Pan Africa Insurance Ltd	16.7	66%	109%	2.815409	0.66	1.09	0.59405	0.030819311	2.846228031	0.707107	0.770746391
	Standard Chartered Bank Ltd	51.6	11%	15%	3.943522	0.11	0.15	0.01125	0.047185078	3.99070675	0.707107	0.106066017
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed										
	A Baumann & Co Ltd	16.9	-4%	12%	2.827314	-0.04	0.12	0.0072	-0.025789349	2.801524273	0.707107	0.084852814
	CMC Holdings Ltd	33	-7%	16%	3.496508	-0.07	0.16	0.0128	-0.040490909	3.456016652	0.707107	0.113137085
	Car & General (K) Ltd	12	-25%	105%	2.484907	-0.25	1.05	0.55125	-0.400625	2.08428165	0.707107	0.74246212
	Express Kenya Ltd	28.6	-34%	49%	3.353407	-0.34	0.49	0.12005	-0.22960542	3.123801298	0.707107	0.346482323
	Kenya Airways Ltd	8.1	-4%	39%	2.091864	-0.04	0.39	0.07605	-0.056543519	2.035320543	0.707107	0.275771645
	Lonhro Motors (EA) Ltd	22	-40%	38%	3.091042	-0.40	0.38	0.0722	-0.233827273	2.857215181	0.707107	0.268700577
	Marshalls (EA) Ltd	25	-6%	19%	3.218876	-0.06	0.19	0.01805	-0.037025	3.181850825	0.707107	0.134350288
	Nation Media Group Ltd	137.7	-26%	22%	4.925077	-0.26	0.22	0.0242	-0.141548076	4.78352933	0.707107	0.155563492
	Pearl Drycleaners Ltd	10	-70%	120%	2.302585	-0.70	1.20	0.72	-0.71	1.592585093	0.707107	0.848528137
	Standard Newspapers Ltd	21.3	-53%	112%	3.058707	-0.53	1.12	0.6272	-0.578858216	2.479848857	0.707107	0.791959595
	Tourism Promotion Services (Serena)	14.5	11%	16%	2.674149	0.11	0.16	0.0128	0.048772414	2.722921063	0.707107	0.113137085
	Uchumi Supermarkets Ltd	44	0%	27%	3.78419	0.00	0.27	0.03645	-0.019361364	3.76482827	0.707107	0.190918831
Industrial and Allied	*Athi River Mining Ltd*	6.2	-5%	42%	1.824549	-0.05	0.42	0.0882	-0.068293548	1.756255744	0.707107	0.296984848
	Bamburi Cement Ltd	36	-23%	31%	3.583519	-0.23	0.31	0.04805	-0.141386111	3.442132827	0.707107	0.219203102
	British American Tobacco Ltd	71.2	1%	27%	4.265493	0.01	0.27	0.03645	-0.012607022	4.252885796	0.707107	0.190918831
	B O C Gases Ltd	36	-20%	31%	3.583519	-0.20	0.31	0.04805	-0.123330556	3.460188383	0.707107	0.219203102
	Carbacid Investments Ltd	76.5	6%	29%	4.337291	0.06	0.29	0.04205	0.008386765	4.345677506	0.707107	0.205060967
	Crown Berger Ltd	8.1	48%	69%	2.091864	0.48	0.69	0.23805	0.120975	2.212839062	0.707107	0.487903679
	Dunlop Kenya Ltd	20	-49%	57%	2.995732	-0.49	0.57	0.16245	-0.326225	2.669507274	0.707107	0.403050865
	EA Cables Ltd	20	-10%	68%	2.995732	-0.10	0.68	0.2312	-0.1656	2.830132274	0.707107	0.480832611
	EA Packaging Ltd	15.5	-55%	51%	2.74084	-0.55	0.51	0.13005	-0.339218548	2.401621476	0.707107	0.360624458
	EA Portland Cement Ltd	17.6	-36%	107%	2.867899	-0.36	1.07	0.57245	-0.468043182	2.39985572	0.707107	0.756604256
	Firestone East Africa Ltd	16.1	7%	24%	2.778819	0.07	0.24	0.0288	0.019761491	2.798580763	0.707107	0.169705627
	East Africa Breweries Ltd	68.8	12%	20%	4.231204	0.12	0.20	0.02	0.048866279	4.280070024	0.707107	0.141421356
	Kenya National Mills Ltd	17	-44%	77%	2.833213	-0.44	0.77	0.29645	-0.368813235	2.464400109	0.707107	0.544472222
	Kenya Oil Co Ltd	55	23%	42%	4.007333	0.23	0.42	0.0882	0.072263636	4.079596822	0.707107	0.296984848
	Kenya Power & Lighting Ltd	124.9	-20%	25%	4.827513	-0.20	0.25	0.03125	-0.113303143	4.714210275	0.707107	0.176776695
	Total Kenya Ltd	49	4%	25%	3.89182	0.04	0.25	0.03125	0.004783163	3.896603461	0.707107	0.176776695
	Unga Group Ltd	47	-45%	103%	3.850148	-0.45	1.03	0.53045	-0.488629255	3.361518346	0.707107	0.728319985

ESTIMATION OF EXERCISE PRICES-JULY-DECEMBER 1999

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	146.9	-25%	39%	4.989752	-0.25	0.39	0.076228	-0.163113862	4.826638221	0.707107	0.276093688
	Eaagads Limited	42.1	-37%	60%	3.740048	-0.37	0.60	0.18184	-0.275919923	3.464127818	0.707107	0.426426835
	George Williamson Kenya Ltd	143	-33%	22%	4.962845	-0.33	0.22	0.024888	-0.177444172	4.785400458	0.707107	0.157760403
	Kakuzi Ltd	120.4	-36%	27%	4.79082	-0.36	0.27	0.035396	-0.197697883	4.593121649	0.707107	0.188137627
	Kapchorua Tea Co Ltd	150	61%	24%	5.010635	0.61	0.24	0.027623	0.291188692	5.301823986	0.707107	0.166200531
	Limuru Tea Co Ltd	650	-7%	16%	6.476972	-0.07	0.16	0.012222	-0.041111023	6.435861339	0.707107	0.110553367
	Rea Vipingo Ltd	6	-20%	20%	1.791759	-0.20	0.20	0.020108	-0.110053819	1.681705651	0.707107	0.141801401
	Sasini Tea & Coffee Ltd	54	-35%	27%	3.988984	-0.35	0.27	0.036091	-0.193045484	3.795938563	0.707107	0.189976229
Finance & Investment	*Barclays Bank Ltd*	109.6	-10%	20%	4.696837	-0.10	0.20	0.02	-0.06	4.636837375	0.707107	0.141421356
	City Trust Ltd	22.5	-15%	14%	3.113515	-0.15	0.14	0.0098	-0.0799	3.033615309	0.707107	0.098994949
	CFC Bank Ltd	15.1	4%	43%	2.714695	0.04	0.43	0.09245	-0.026225	2.688469744	0.707107	0.304055916
	Diamond Trust Bank Kenya Ltd	23.9	20%	25%	3.173878	0.20	0.25	0.03125	0.084375	3.258253459	0.707107	0.176776695
	Housing Finance Co (K) Ltd	13.1	-28%	28%	2.572612	-0.28	0.28	0.0392	-0.1596	2.41301223	0.707107	0.197989899
	ICDC Investments Co Ltd	48.3	27%	8%	3.877432	0.27	0.08	0.0032	0.1334	4.010831561	0.707107	0.056568542
	Jubilee Insurance Co Ltd	28.4	-18%	23%	3.346389	-0.18	0.23	0.02645	-0.103225	3.243164145	0.707107	0.16263456
	Kenya Commercial Bank Ltd	43.9	-49%	23%	3.781914	-0.49	0.23	0.02645	-0.258225	3.52368932	0.707107	0.16263456
	National Bank of Kenya Ltd	6.3	-42%	29%	1.84055	-0.42	0.29	0.04205	-0.231025	1.609524633	0.707107	0.205060967
	National Industrial Credit Ltd	28.7	-5%	14%	3.356897	-0.05	0.14	0.0098	-0.0299	3.326997123	0.707107	0.098994949
	Pan Africa Insurance Ltd	24	66%	109%	3.178054	0.66	1.09	0.59405	0.032975	3.21102883	0.707107	0.770746391
	Standard Chartered Bank Ltd	48.9	11%	15%	3.889777	0.11	0.15	0.01125	0.049375	3.939152396	0.707107	0.106066017
Commercial & Services	*Africa Lakes Corporation Plc*											
	A Baumann & Co Ltd	16.9	-4%	12%	2.827314	-0.04	0.12	0.0072	-0.0236	2.803713622	0.707107	0.084852814
	CMC Holdings Ltd	28	-7%	16%	3.332205	-0.07	0.16	0.0128	-0.0414	3.29080451	0.707107	0.113137085
	Car & General (K) Ltd	10	-25%	105%	2.302585	-0.25	1.05	0.55125	-0.400625	1.901960093	0.707107	0.74246212
	Express Kenya Ltd	25.5	-34%	49%	3.238678	-0.34	0.49	0.12005	-0.230025	3.008653452	0.707107	0.346482323
	Kenya Airways Ltd	8	-4%	39%	2.079442	-0.04	0.39	0.07605	-0.058025	2.021416542	0.707107	0.275771645
	Lonhro Motors (EA) Ltd	17	-40%	38%	2.833213	-0.40	0.38	0.0722	-0.2361	2.597113344	0.707107	0.268700577
	Marshalls (EA) Ltd	22	-6%	19%	3.091042	-0.06	0.19	0.01805	-0.039025	3.052017453	0.707107	0.134350288
	Nation Media Group Ltd	130	-26%	22%	4.867534	-0.26	0.22	0.0242	-0.1421	4.72543445	0.707107	0.155563492
	Pearl Drycleaners Ltd	10	-70%	120%	2.302585	-0.70	1.20	0.72	-0.71	1.592585093	0.707107	0.848528137
	Standard Newspapers Ltd	14	-53%	112%	2.639057	-0.53	1.12	0.6272	-0.5786	2.06045733	0.707107	0.791959595
	Tourism Promotion Services (Serena)	13.2	-11%	16%	2.580217	-0.11	0.16	0.0128	-0.0614	2.51881683	0.707107	0.113137085
	Uchumi Supermarkets Ltd	48.2	0%	27%	3.875359	0.00	0.27	0.03645	-0.018225	3.857134021	0.707107	0.190918831
Industrial and Allied	*Athi River Mining Ltd*	5.7	-5%	42%	1.740466	-0.05	0.42	0.0882	-0.0691	1.671366175	0.707107	0.296984848
	Bamburi Cement Ltd	26	-23%	31%	3.258097	-0.23	0.31	0.04805	-0.139025	3.119071538	0.707107	0.219203102
	British American Tobacco Ltd	71.5	1%	27%	4.269697	0.01	0.27	0.03645	-0.013225	4.25647245	0.707107	0.190918831
	B O C Gases Ltd	26	-20%	31%	3.258097	-0.20	0.31	0.04805	-0.124025	3.134071538	0.707107	0.219203102
	Carbacid Investments Ltd	95.6	6%	29%	4.560173	0.06	0.29	0.04205	0.008975	4.56914782	0.707107	0.205060967
	Crown Berger Ltd	8.5	48%	69%	2.140066	0.48	0.69	0.23805	0.120975	2.261041163	0.707107	0.487903679
	Dunlop Kenya Ltd	15	-49%	57%	2.70805	-0.49	0.57	0.16245	-0.326225	2.381825201	0.707107	0.403050865
	EA Cables Ltd	19.6	-10%	68%	2.97553	-0.10	0.68	0.2312	-0.1656	2.809929566	0.707107	0.480832611
	EA Packaging Ltd	14	-55%	51%	2.639057	-0.55	0.51	0.13005	-0.340025	2.29903233	0.707107	0.360624458
	EA Portland Cement Ltd	14.5	-36%	107%	2.674149	-0.36	1.07	0.57245	-0.466225	2.207923649	0.707107	0.756604256
	Firestone East Africa Ltd	16.5	7%	24%	2.80336	0.07	0.24	0.0288	0.0206	2.823960381	0.707107	0.169705627
	East Africa Breweries Ltd	77.1	12%	20%	4.345103	0.12	0.20	0.02	0.05	4.395103281	0.707107	0.141421356
	Kenya National Mills Ltd	14	-44%	77%	2.639057	-0.44	0.77	0.29645	-0.368225	2.27083233	0.707107	0.544472222
	Kenya Oil Co Ltd	76	23%	42%	4.330733	0.23	0.42	0.0882	0.0709	4.40163334	0.707107	0.296984848
	Kenya Power & Lighting Ltd	111.3	-20%	25%	4.712229	-0.20	0.25	0.03125	-0.115625	4.596604258	0.707107	0.176776695
	Total Kenya Ltd	47	4%	25%	3.850148	0.04	0.25	0.03125	0.004375	3.854522602	0.707107	0.176776695
	Unga Group Ltd	31.1	-45%	103%	3.437208	-0.45	1.03	0.53045	-0.490225	2.946982819	0.707107	0.728319985

ESTIMATION OF EXERCISE PRICES- January-June 2000

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5)	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	104.7	-4%	28%	4.651099	-0.04	0.28	0.039002	-0.037170337	4.61392878	0.707107	0.19748826
	Eaagads Limited	25	-18%	21%	3.218876	-0.18	0.21	0.021291	-0.100645584	3.118230241	0.707107	0.14591493
	George Williamson Kenya Ltd	92	8%	43%	4.521789	0.08	0.43	0.092946	-0.005712072	4.516076505	0.707107	0.30487027
	Kakuzi Ltd	91.5	-36%	29%	4.516339	-0.36	0.29	0.042383	-0.20292932	4.313409652	0.707107	0.20587244
	Kapchorua Tea Co Ltd	150	2%	0%	5.010635	0.02	0.00	0	0.008333333	5.018968627	0.707107	0
	Limuru Tea Co Ltd	650	8%	0%	6.476972	0.08	0.00	0	0.042307692	6.519280055	0.707107	0
	Rea Vipingo Ltd	4.95	-37%	22%	1.599388	-0.37	0.22	0.024048	-0.198892682	1.400494895	0.707107	0.15507414
	Sasini Tea & Coffee Ltd	44.9	-19%	30%	3.804438	-0.19	0.30	0.045	-0.11938196	3.685055835	0.707107	0.21213203
Finance & Investment	*Barclays Bank Ltd*	82.95	3%	36%	4.418238	0.03	0.36	0.0648	-0.017029295	4.401208722	0.707107	0.25455844
	City Trust Ltd	22	15%	19%	3.091042	0.15	0.19	0.01805	0.064838636	3.15588109	0.707107	0.13435029
	CFC Bank Ltd	11	-3%	40%	2.397895	-0.03	0.40	0.08	-0.052727273	2.345168	0.707107	0.28284271
	Diamond Trust Bank Kenya Ltd	26	-45%	29%	3.258097	-0.45	0.29	0.04205	-0.244101923	3.013994615	0.707107	0.20506097
	Housing Finance Co (K) Ltd	10.6	-46%	111%	2.360854	-0.46	1.11	0.61605	-0.536798585	1.824055416	0.707107	0.78488853
	ICDC Investments Co Ltd	50	-1%	27%	3.912023	-0.01	0.27	0.03645	-0.023225	3.888798005	0.707107	0.19091883
	Jubilee Insurance Co Ltd	25.1	9%	24%	3.222868	0.09	0.24	0.0288	0.028428685	3.251296531	0.707107	0.16970563
	Kenya Commercial Bank Ltd	21.8	17%	34%	3.08191	0.17	0.34	0.0578	0.055962385	3.137872355	0.707107	0.24041631
	National Bank of Kenya Ltd	5	-37%	51%	1.609438	-0.37	0.51	0.13005	-0.250025	1.359412912	0.707107	0.36062446
	National Industrial Credit Ltd	27	-28%	39%	3.295837	-0.28	0.39	0.07605	-0.175987963	3.119848903	0.707107	0.27577164
	Pan Africa Insurance Ltd	26.5	-58%	39%	3.277145	-0.58	0.39	0.07605	-0.33047783	2.946666903	0.707107	0.27577164
	Standard Chartered Bank Ltd	37.5	44%	51%	3.624341	0.44	0.51	0.13005	0.153641667	3.7779826	0.707107	0.36062446
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for a full year										
	A Baumann & Co Ltd	15	-30%	22%	2.70805	-0.30	0.22	0.0242	-0.1621	2.545950201	0.707107	0.15556349
	CMC Holdings Ltd	30	-49%	27%	3.401197	-0.49	0.27	0.03645	-0.264058333	3.137139048	0.707107	0.19091883
	Car & General (K) Ltd	9	11%	94%	2.197225	0.11	0.94	0.4418	-0.165344444	2.031880133	0.707107	0.66468037
	Express Kenya Ltd	18.9	-5%	13%	2.939162	-0.05	0.13	0.00845	-0.030680026	2.908481896	0.707107	0.09192388
	Kenya Airways Ltd	7.85	31%	25%	2.060514	0.31	0.25	0.03125	0.137241242	2.197754774	0.707107	0.1767767
	Marshalls (EA) Ltd	23.6	-21%	20%	3.161247	-0.21	0.20	0.02	-0.115932203	3.045314509	0.707107	0.14142136
	Nation Media Group Ltd	101	-30%	17%	4.615121	-0.30	0.17	0.01445	-0.156977475	4.458143042	0.707107	0.12020815
	Pearl Drycleaners Ltd	3	-32%	26%	1.098612	-0.32	0.26	0.0338	-0.175233333	0.923378955	0.707107	0.18384776
	Standard Newspapers Ltd	11	44%	110%	2.397895	0.44	1.10	0.605	-0.084318182	2.313577091	0.707107	0.77781746
	Tourism Promotion Services (Serena)	16.2	-50%	97%	2.785011	-0.50	0.97	0.47045	-0.48368179	2.301329452	0.707107	0.68589358
	Uchumi Supermarkets Ltd	40.2	29%	17%	3.693867	0.29	0.17	0.01445	0.139541169	3.833408165	0.707107	0.12020815
Industrial and Allied	*Athi River Mining Ltd*	5.6	-29%	42%	1.722767	-0.29	0.42	0.0882	-0.186957143	1.535809455	0.707107	0.29698485
	Bamburi Cement Ltd	26	33%	14%	3.258097	0.33	0.14	0.0098	0.158561538	3.416658076	0.707107	0.09899495
	British American Tobacco Ltd	57	1%	52%	4.043051	0.01	0.52	0.1352	-0.061982022	3.981069245	0.707107	0.36769553
	B O C Gases Ltd	64	-21%	30%	4.158883	-0.21	0.30	0.045	-0.125625	4.033258083	0.707107	0.21213203
	Carbacid Investments Ltd	56	-24%	40%	4.025352	-0.24	0.40	0.08	-0.158303571	3.867048119	0.707107	0.28284271
	Crown Berger Ltd	11.05	-10%	34%	2.40243	-0.10	0.34	0.0578	-0.0789	2.323530428	0.707107	0.24041631
	Dunlop Kenya Ltd	9.8	-31%	22%	2.282382	-0.31	0.22	0.0242	-0.165161224	2.117221161	0.707107	0.15556349
	EA Cables Ltd	12.95	6%	62%	2.561096	0.06	0.62	0.1922	-0.065211969	2.495883819	0.707107	0.4384062
	EA Packaging Ltd	12.5	-40%	86%	2.525729	-0.40	0.86	0.3698	-0.3849	2.140828644	0.707107	0.60811183
	EA Portland Cement Ltd	11.2	4%	24%	2.415914	0.04	0.24	0.0288	0.007921429	2.423835207	0.707107	0.16970563
	Firestone East Africa Ltd	15.6	-20%	30%	2.747271	-0.20	0.30	0.045	-0.121858974	2.62541194	0.707107	0.21213203
	East Africa Breweries Ltd	65.95	24%	17%	4.188897	0.24	0.17	0.01445	0.114458093	4.303354972	0.707107	0.12020815
	Kenya National Mills Ltd	9.5	-26%	80%	2.251292	-0.26	0.80	0.32	-0.291578947	1.959712851	0.707107	0.56568542
	Kenya Oil Co Ltd	67.75	19%	23%	4.215824	0.19	0.23	0.02645	0.080870941	4.296695401	0.707107	0.16263456
	Kenya Power & Lighting Ltd	92.2	-54%	46%	4.52396	-0.54	0.46	0.1058	-0.325134273	4.198825857	0.707107	0.32526912
	Total Kenya Ltd	48.25	21%	43%	3.876396	0.21	0.43	0.09245	0.058956347	3.935352175	0.707107	0.30405592
	Unga Group Ltd	22.85	-39%	73%	3.128951	-0.39	0.73	0.26645	-0.329067451	2.799883667	0.707107	0.51618795

ESTIMATION OF EXERCISE PRICES-JULY-DECEMBER 2000

SECTOR	COMPANY	p0	E(R)	Volatility	LN(p0)	E(R)	V	V2/2	(E(R)-V2/2)*0.5	LN(p0)+(E(R)-V2/2*0.5	SQRT(0.5)	V*SQRT(0.5)
Agricultural	*Brooke Bond Kenya Limited*	74	-4%	28%	4.304065	-0.04	0.28	0.039002	-0.037170337	4.266894756	0.7071068	0.197488255
	Eaagads Limited	25	-18%	21%	3.218876	-0.18	0.21	0.021291	-0.100645584	3.118230241	0.7071068	0.145914933
	George Williamson Kenya Ltd	75	8%	43%	4.317488	0.08	0.43	0.092946	-0.005712072	4.311776041	0.7071068	0.304870273
	Kakuzi Ltd	66.5	-38%	29%	4.197202	-0.38	0.29	0.042383	-0.21299501	3.984206937	0.7071068	0.205872445
	Kapchorua Tea Co Ltd	150	2%	0%	5.010635	0.02	0.00	0	0.008333333	5.018968627	0.7071068	0
	Limuru Tea Co Ltd	650	8%	0%	6.476972	0.08	0.00	0	0.042307692	6.519280055	0.7071068	0
	Rea Vipingo Ltd	3.85	-37%	22%	1.348073	-0.37	0.22	0.024048	-0.198892682	1.149180467	0.7071068	0.155074142
	Sasini Tea & Coffee Ltd	35	-19%	30%	3.555348	-0.19	0.30	0.045	-0.11938196	3.435966102	0.7071068	0.212132034
Finance & Investment	*Barclays Bank Ltd*	86	3%	36%	4.454347	0.03	0.36	0.0648	-0.0174	4.436947296	0.7071068	0.254558441
	City Trust Ltd	20	15%	19%	2.995732	0.15	0.19	0.01805	0.065975	3.061707274	0.7071068	0.134350288
	CFC Bank Ltd	9.8	-3%	40%	2.282382	-0.03	0.40	0.08	-0.055	2.227382386	0.7071068	0.282842712
	Diamond Trust Bank Kenya Ltd	20	-45%	29%	2.995732	-0.45	0.29	0.04205	-0.246025	2.749707274	0.7071068	0.205060967
	Housing Finance Co (K) Ltd	7.05	-46%	111%	1.953028	-0.46	1.11	0.61605	-0.538025	1.415002617	0.7071068	0.784888527
	ICDC Investments Co Ltd	49.5	-1%	27%	3.901973	-0.01	0.27	0.03645	-0.023225	3.87874767	0.7071068	0.190918831
	Jubilee Insurance Co Ltd	22	9%	24%	3.091042	0.09	0.24	0.0288	0.0306	3.121642453	0.7071068	0.169705627
	Kenya Commercial Bank Ltd	28	17%	34%	3.332205	0.17	0.34	0.0578	0.0561	3.38830451	0.7071068	0.240416306
	National Bank of Kenya Ltd	3.6	-37%	51%	1.280934	-0.37	0.51	0.13005	-0.250025	1.030908845	0.7071068	0.360624458
	National Industrial Credit Ltd	21	-28%	39%	3.044522	-0.28	0.39	0.07605	-0.178025	2.866497438	0.7071068	0.275771645
	Pan Africa Insurance Ltd	20	-58%	39%	2.995732	-0.58	0.39	0.07605	-0.328025	2.667707274	0.7071068	0.275771645
	Standard Chartered Bank Ltd	48	44%	51%	3.871201	0.44	0.51	0.13005	0.154975	4.026176011	0.7071068	0.360624458
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for the full year										
	A Baumann & Co Ltd	13.8	-30%	22%	2.624669	-0.30	0.22	0.0242	-0.1621	2.462568592	0.7071068	0.155563492
	CMC Holdings Ltd	16.8	-49%	27%	2.821379	-0.49	0.27	0.03645	-0.263225	2.558153886	0.7071068	0.190918831
	Car & General (K) Ltd	10.05	11%	94%	2.307573	0.11	0.94	0.4418	-0.1659	2.141672635	0.7071068	0.664680374
	Express Kenya Ltd	19.05	-5%	13%	2.947067	-0.05	0.13	0.00845	-0.029225	2.917842102	0.7071068	0.091923882
	Kenya Airways Ltd	8	31%	25%	2.079442	0.31	0.25	0.03125	0.139375	2.218816542	0.7071068	0.176776695
	Marshalls (EA) Ltd	19.3	-21%	20%	2.960105	-0.21	0.20	0.02	-0.115	2.845105096	0.7071068	0.141421356
	Nation Media Group Ltd	75	-30%	17%	4.317488	-0.30	0.17	0.01445	-0.157225	4.160263114	0.7071068	0.120208153
	Pearl Drycleaners Ltd	2.4	-32%	26%	0.875469	-0.32	0.26	0.0338	-0.1769	0.698568737	0.7071068	0.183847763
	Standard Newspapers Ltd	6.1	44%	110%	1.808289	0.44	1.10	0.605	-0.0825	1.725788771	0.7071068	0.777817459
	Tourism Promotion Services (Serena)	15.95	-50%	97%	2.769459	-0.50	0.97	0.47045	-0.485225	2.284233829	0.7071068	0.685893578
	Uchumi Supermarkets Ltd	42.75	29%	17%	3.755369	0.29	0.17	0.01445	0.137775	3.893144195	0.7071068	0.120208153
Industrial and Allied	*Athi River Mining Ltd*	4.55	-29%	42%	1.515127	-0.29	0.42	0.0882	-0.1891	1.326027233	0.7071068	0.296984848
	Bamburi Cement Ltd	29.25	33%	14%	3.37588	0.33	0.14	0.0098	0.1601	3.535979574	0.7071068	0.098994949
	British American Tobacco Ltd	57	17%	52%	4.043051	0.17	0.52	0.1352	0.0174	4.060451268	0.7071068	0.367695526
	B O C Gases Ltd	47.25	-21%	30%	3.855453	-0.21	0.30	0.045	-0.1275	3.727952654	0.7071068	0.212132034
	Carbacid Investments Ltd	50	-24%	40%	3.912023	-0.24	0.40	0.08	-0.16	3.752023005	0.7071068	0.282842712
	Crown Berger Ltd	12.5	-10%	34%	2.525729	-0.10	0.34	0.0578	-0.0789	2.446828644	0.7071068	0.240416306
	Dunlop Kenya Ltd	7.5	-31%	22%	2.014903	-0.31	0.22	0.0242	-0.1671	1.847803021	0.7071068	0.155563492
	EA Cables Ltd	8	6%	62%	2.079442	0.06	0.62	0.1922	-0.0661	2.013341542	0.7071068	0.438406204
	EA Packaging Ltd	13.2	-40%	86%	2.580217	-0.40	0.86	0.3698	-0.3849	2.19531683	0.7071068	0.608111832
	EA Portland Cement Ltd	12.4	4%	24%	2.517696	0.04	0.24	0.0288	0.0056	2.523296473	0.7071068	0.169705627
	Firestone East Africa Ltd	12.95	-20%	30%	2.561096	-0.20	0.30	0.045	-0.1225	2.438595788	0.7071068	0.212132034
	East Africa Breweries Ltd	65.5	24%	17%	4.18205	0.24	0.17	0.01445	0.112775	4.294825143	0.7071068	0.120208153
	Kenya National Mills Ltd	10.5	-26%	80%	2.351375	-0.26	0.80	0.32	-0.29	2.061375257	0.7071068	0.565685425
	Kenya Oil Co Ltd	82	19%	23%	4.406719	0.19	0.23	0.02645	0.081775	4.488494247	0.7071068	0.16263456
	Kenya Power & Lighting Ltd	51.5	-54%	46%	3.941582	-0.54	0.46	0.1058	-0.3229	3.618681808	0.7071068	0.325269119
	Total Kenya Ltd	51	21%	43%	3.931826	0.21	0.43	0.09245	0.058775	3.990600633	0.7071068	0.304055916
	Unga Group Ltd	15.4	-39%	73%	2.734368	-0.39	0.73	0.26645	-0.328225	2.406142509	0.7071068	0.51618795

APPENDIX 5 – ESTIMATION OF EXERCISE PRICE RANGES

ESTIMATION OF EXERCISE PRICE RANGES-January-June 1997

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	LN(p0)+(E(R)-V2/2*0.5	b	V*SQRT(0.5)	c	d	e
Agricultural	*Brooke Bond Kenya Limited*	4.868854678	1.96	0.10091211	0.197788	4.671067	**106.8116**	4.868854678	1.96	0.10091211	0.197788	5.066642	**158.6408**
	Eaagads Limited	3.543993514	1.96	0.36348317	0.712427	2.831567	**16.97203**	3.543993514	1.96	0.36348317	0.712427	4.256421	**70.55697**
	George Williamson Kenya Ltd	4.276573763	1.96	0.48106474	0.942887	3.333687	**28.04154**	4.276573763	1.96	0.48106474	0.942887	5.219461	**184.8345**
	Kakuzi Ltd	4.520659909	1.96	0.35862953	0.702914	3.817746	**45.50153**	4.520659909	1.96	0.35862953	0.702914	5.223574	**185.5963**
	Kapchorua Tea Co Ltd	4.258495242	1.96	0	0	4.258495	**70.70351**	4.258495242	1.96	0	0	4.258495	**70.70351**
	Limuru Tea Co Ltd	6.946204665	1.96	0.21870015	0.428652	6.517552	**676.9195**	6.946204665	1.96	0.21870015	0.428652	7.374857	**1595.364**
	Rea Vipingo Ltd	2.365029627	1.96	0.18902722	0.370493	1.994536	**7.348794**	2.365029627	1.96	0.18902722	0.370493	2.735523	**15.4178**
	Sasini Tea & Coffee Ltd	4.368990207	1.96	0.2659111	0.521186	3.847804	**46.89**	4.368990207	1.96	0.2659111	0.521186	4.890176	**132.977**
Finance & Investment	*Barclays Bank Ltd*	4.782863096	1.96	0.1189036	0.233051	4.549812	**94.61462**	4.782863096	1.96	0.1189036	0.233051	5.015914	**150.7939**
	City Trust Ltd	3.531451603	1.96	0.10055803	0.197094	3.334358	**28.06036**	3.531451603	1.96	0.10055803	0.197094	3.728545	**41.61852**
	CFC Bank Ltd	2.983393259	1.96	0.26896798	0.527177	2.456216	**11.6606**	2.983393259	1.96	0.26896798	0.527177	3.51057	**33.46736**
	Diamond Trust Bank Kenya Ltd	3.381509552	1.96	0.17777912	0.348447	3.033062	**20.76071**	3.381509552	1.96	0.17777912	0.348447	3.729957	**41.6773**
	Housing Finance Co (K) Ltd	3.083198556	1.96	0.09854212	0.193143	2.890056	**17.99432**	3.083198556	1.96	0.09854212	0.193143	3.276341	**26.47871**
	ICDC Investments Co Ltd	3.504814319	1.96	0.53677767	1.052084	2.45273	**11.62003**	3.504814319	1.96	0.53677767	1.052084	4.556899	**95.28749**
	Jubilee Insurance Co Ltd	3.620960124	1.96	0.19848485	0.38903	3.23193	**25.32849**	3.620960124	1.96	0.19848485	0.38903	4.00999	**55.14634**
	Kenya Commercial Bank Ltd	4.43646219	1.96	0.23810704	0.46669	3.969772	**52.97247**	4.43646219	1.96	0.23810704	0.46669	4.903152	**134.7137**
	National Bank of Kenya Ltd	2.668649768	1.96	0.21881021	0.428868	2.239782	**9.391281**	2.668649768	1.96	0.21881021	0.428868	3.097518	**22.14292**
	National Industrial Credit Ltd	3.917529429	1.96	0.17025614	0.333702	3.583827	**36.01111**	3.917529429	1.96	0.17025614	0.333702	4.251231	**70.1918**
	Regent Undervalued Assets Africa Fund	#NUM!	1.96	0	0	#NUM!	**#NUM!**	#NUM!	1.96	0	0	#NUM!	**#NUM!**
	Pan Africa Insurance Ltd	3.832335812	1.96	0.24285724	0.476	3.356336	**28.68389**	3.832335812	1.96	0.24285724	0.476	4.308336	**74.31672**
	Standard Chartered Bank Ltd	3.944929243	1.96	0.09005336	0.176505	3.768425	**43.31178**	3.944929243	1.96	0.09005336	0.176505	4.121434	**61.64757**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed						Not listed					
	A Baumann & Co Ltd	3.170679757	1.96	0.40206419	0.788046	2.382634	**10.8334**	3.170679757	1.96	0.40206419	0.788046	3.958726	**52.39051**
	CMC Holdings Ltd	4.28804143	1.96	0.26628486	0.521918	3.766123	**43.21221**	4.28804143	1.96	0.26628486	0.521918	4.80996	**122.7267**
	Car & General (K) Ltd	2.882582887	1.96	0.16216897	0.317851	2.564732	**12.99717**	2.882582887	1.96	0.16216897	0.317851	3.200434	**24.54318**
	Express Kenya Ltd	4.237050031	1.96	0.13178247	0.258294	3.978756	**53.45052**	4.237050031	1.96	0.13178247	0.258294	4.495344	**89.59896**
	Kenya Airways Ltd	2.135539699	1.96	0.09514688	0.186488	1.949052	**7.022026**	2.135539699	1.96	0.09514688	0.186488	2.322028	**10.19633**
	Lonhro Motors (EA) Ltd	4.141094217	1.96	0.84963056	1.665276	2.475818	**11.89143**	4.141094217	1.96	0.84963056	1.665276	5.80637	**332.4103**
	Marshalls (EA) Ltd	3.489780799	1.96	0.83180396	1.630336	1.859445	**6.420173**	3.489780799	1.96	0.83180396	1.630336	5.120117	**167.3549**
	Nation Media Group Ltd	4.745022825	1.96	0.39335733	0.77098	3.974042	**53.19915**	4.745022825	1.96	0.39335733	0.77098	5.516003	**248.6393**
	Pearl Drycleaners Ltd	2.344745085	1.96	0.12521987	0.245431	2.099314	**8.160571**	2.344745085	1.96	0.12521987	0.245431	2.590176	**13.33212**
	Standard Newspapers Ltd	4.565074564	1.96	0.49535885	0.970903	3.594171	**36.38553**	4.565074564	1.96	0.49535885	0.970903	5.535978	**253.6557**
	Tourism Promotion Services (Serena)	Not listed for the full 6 months											
	Uchumi Supermarkets Ltd	3.667364064	1.96	0.31700403	0.621328	3.046036	**21.03181**	3.667364064	1.96	0.31700403	0.621328	4.288692	**72.87109**
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full 6 months											
	Bamburi Cement Ltd	3.602696453	1.96	0.31994688	0.627096	2.975601	**19.60139**	3.602696453	1.96	0.31994688	0.627096	4.229792	**68.70296**
	British American Tobacco Ltd	4.231344311	1.96	0.21211458	0.415745	3.8156	**45.40398**	4.231344311	1.96	0.21211458	0.415745	4.647089	**104.281**
	B O C Gases Ltd	3.942462629	1.96	0.77592862	1.52082	2.421643	**11.26435**	3.942462629	1.96	0.77592862	1.52082	5.463283	**235.8705**
	Carbacid Investments Ltd	4.312489055	1.96	0.135869	0.266303	4.046186	**57.17895**	4.312489055	1.96	0.135869	0.266303	4.578792	**97.3967**
	Crown Berger Ltd	2.430958171	1.96	0.26370617	0.516864	1.914094	**6.780793**	2.430958171	1.96	0.26370617	0.516864	2.947822	**19.06439**
	Dunlop Kenya Ltd	4.647985561	1.96	1.13910977	2.232655	2.41533	**11.19347**	4.647985561	1.96	1.13910977	2.232655	6.880641	**973.2497**
	EA Cables Ltd	3.51642469	1.96	0.19744985	0.387002	3.129423	**22.86078**	3.51642469	1.96	0.19744985	0.387002	3.903426	**49.57201**
	EA Packaging Ltd	4.037606263	1.96	0.34896699	0.683975	3.353631	**28.60641**	4.037606263	1.96	0.34896699	0.683975	4.721582	**112.3458**
	EA Portland Cement Ltd	3.033905228	1.96	0.41174723	0.807025	2.226881	**9.270902**	3.033905228	1.96	0.41174723	0.807025	3.84093	**46.56875**
	Firestone East Africa Ltd	3.300562292	1.96	0.24752814	0.485155	2.815407	**16.69997**	3.300562292	1.96	0.24752814	0.485155	3.785717	**44.06727**
	East Africa Breweries Ltd	3.969696155	1.96	0.17953838	0.351895	3.617801	**37.25555**	3.969696155	1.96	0.17953838	0.351895	4.321591	**75.30838**
	Kenya National Mills Ltd	3.598882407	1.96	0.24206266	0.474443	3.12444	**22.74714**	3.598882407	1.96	0.24206266	0.474443	4.073325	**58.752**
	Kenya Oil Co Ltd	4.115833786	1.96	0.15392265	0.301688	3.814145	**45.33799**	4.115833786	1.96	0.15392265	0.301688	4.417522	**82.89064**
	Kenya Power & Lighting Ltd	4.988638695	1.96	0.33517451	0.656942	4.331697	**76.07325**	4.988638695	1.96	0.33517451	0.656942	5.645581	**283.0379**
	Total Kenya Ltd	4.25825326	1.96	0.40010379	0.784203	3.47405	**32.26715**	4.25825326	1.96	0.40010379	0.784203	5.042457	**154.85**
	Unga Group Ltd	4.789926575	1.96	0.27409913	0.537234	4.252692	**70.29441**	4.789926575	1.96	0.27409913	0.537234	5.327161	**205.8527**

ESTIMATION OF EXERCISE PRICE RANGES-JULY-DECEMBER 1997

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	f LN(p0)+(E(R)-V2/2*0.5	g	h V*SQRT(0.5)	i	f+i	j
Agricultural	*Brooke Bond Kenya Limited*	4.685189938	1.96	0.10091211	0.197788	4.487402	**88.89023**	4.685189938	1.96	0.10091211	0.197788	4.882978	**132.0232**
	Eaagads Limited	3.497036531	1.96	0.36348317	0.712427	2.78461	**16.19349**	3.497036531	1.96	0.36348317	0.712427	4.209464	**67.32042**
	George Williamson Kenya Ltd	4.227783599	1.96	0.48106474	0.942887	3.284897	**26.70623**	4.227783599	1.96	0.48106474	0.942887	5.17067	**176.0328**
	Kakuzi Ltd	4.560665244	1.96	0.35862953	0.702914	3.857751	**47.35874**	4.560665244	1.96	0.35862953	0.702914	5.263579	**193.1716**
	Kapchorua Tea Co Ltd	4.258495242	1.96	0	0	4.258495	**70.70351**	4.258495242	1.96	0	0	4.258495	**70.70351**
	Limuru Tea Co Ltd	6.683840401	1.96	0.21870015	0.428652	6.255188	**520.7073**	6.683840401	1.96	0.21870015	0.428652	7.112493	**1227.203**
	Rea Vipingo Ltd	2.197148755	1.96	0.18902722	0.370493	1.826655	**6.213072**	2.197148755	1.96	0.18902722	0.370493	2.567642	**13.03505**
	Sasini Tea & Coffee Ltd	4.717296901	1.96	0.2659111	0.521186	4.196111	**66.4275**	4.717296901	1.96	0.2659111	0.521186	5.238483	**188.384**
Finance & Investment	*Barclays Bank Ltd*	4.738411333	1.96	0.1189036	0.233051	4.50536	**90.50094**	4.738411333	1.96	0.1189036	0.233051	4.971462	**144.2377**
	City Trust Ltd	3.611494311	1.96	0.10055803	0.197094	3.414401	**30.39872**	3.611494311	1.96	0.10055803	0.197094	3.808588	**45.08673**
	CFC Bank Ltd	3.116924651	1.96	0.26896798	0.527177	2.589747	**13.32641**	3.116924651	1.96	0.26896798	0.527177	3.644102	**38.24841**
	Diamond Trust Bank Kenya Ltd	3.193693476	1.96	0.17777912	0.348447	2.845246	**17.2058**	3.193693476	1.96	0.17777912	0.348447	3.542141	**34.54078**
	Housing Finance Co (K) Ltd	3.062145147	1.96	0.09854212	0.193143	2.869003	**17.61944**	3.062145147	1.96	0.09854212	0.193143	3.255288	**25.92707**
	ICDC Investments Co Ltd	3.72795787	1.96	0.53677767	1.052084	2.675874	**14.52503**	3.72795787	1.96	0.53677767	1.052084	4.780042	**119.1094**
	Jubilee Insurance Co Ltd	3.69599531	1.96	0.19848485	0.38903	3.306965	**27.30214**	3.69599531	1.96	0.19848485	0.38903	4.085026	**59.44346**
	Kenya Commercial Bank Ltd	4.681584648	1.96	0.23810704	0.46669	4.214895	**67.68705**	4.681584648	1.96	0.23810704	0.46669	5.148274	**172.1342**
	National Bank of Kenya Ltd	2.617356473	1.96	0.21881021	0.428868	2.188488	**8.921717**	2.617356473	1.96	0.21881021	0.428868	3.046224	**21.03577**
	National Industrial Credit Ltd	4.099850986	1.96	0.17025614	0.333702	3.766149	**43.21333**	4.099850986	1.96	0.17025614	0.333702	4.433553	**84.23016**
	Regent Undervalued Assets Africa Fund	6.363028104	1.96	0	0	6.363028	**580**	6.363028104	1.96	0	0	6.363028	**580**
	Pan Africa Insurance Ltd	4.043644906	1.96	0.24285724	0.476	3.567645	**35.43304**	4.043644906	1.96	0.24285724	0.476	4.519645	**91.80301**
	Standard Chartered Bank Ltd	3.806092798	1.96	0.09005336	0.176505	3.629588	**37.69729**	3.806092798	1.96	0.09005336	0.176505	3.982597	**53.65622**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed											
	A Baumann & Co Ltd	2.932268734	1.96	0.40206419	0.788046	2.144223	**8.535406**	2.932268734	1.96	0.40206419	0.788046	3.720315	**41.27738**
	CMC Holdings Ltd	4.452344481	1.96	0.26628486	0.521918	3.930426	**50.92868**	4.452344481	1.96	0.26628486	0.521918	4.974263	**144.6422**
	Car & General (K) Ltd	2.720063957	1.96	0.16216897	0.317851	2.402213	**11.0476**	2.720063957	1.96	0.16216897	0.317851	3.037915	**20.8617**
	Express Kenya Ltd	4.168996567	1.96	0.13178247	0.258294	3.910703	**49.93404**	4.168996567	1.96	0.13178247	0.258294	4.42729	**83.70429**
	Kenya Airways Ltd	2.09960769	1.96	0.09514688	0.186488	1.91312	**6.77419**	2.09960769	1.96	0.09514688	0.186488	2.286096	**9.836457**
	Lonhro Motors (EA) Ltd	3.701862247	1.96	0.84963056	1.665276	2.036586	**7.664401**	3.701862247	1.96	0.84963056	1.665276	5.367138	**214.2488**
	Marshalls (EA) Ltd	3.97285651	1.96	0.83180396	1.630336	2.342521	**10.40744**	3.97285651	1.96	0.83180396	1.630336	5.603192	**271.2911**
	Nation Media Group Ltd	4.771225197	1.96	0.39335733	0.77098	4.000245	**54.61152**	4.771225197	1.96	0.39335733	0.77098	5.542206	**255.2403**
	Pearl Drycleaners Ltd	2.369437698	1.96	0.12521987	0.245431	2.124007	**8.364585**	2.369437698	1.96	0.12521987	0.245431	2.614869	**13.66542**
	Standard Newspapers Ltd	5.581185631	1.96	0.49535885	0.970903	4.610282	**100.5125**	5.581185631	1.96	0.49535885	0.970903	6.552089	**700.7064**
	Tourism Promotion Services (Serena)	Not listed for the full year											
	Uchumi Supermarkets Ltd	3.673633677	1.96	0.31700403	0.621328	3.052306	**21.16409**	3.673633677	1.96	0.31700403	0.621328	4.294962	**73.3294**
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full year											
	Bamburi Cement Ltd	3.538157931	1.96	0.31994688	0.627096	2.911062	**18.3763**	3.538157931	1.96	0.31994688	0.627096	4.165254	**64.40903**
	British American Tobacco Ltd	3.923377568	1.96	0.21211458	0.415745	3.507633	**33.36919**	3.923377568	1.96	0.21211458	0.415745	4.339122	**76.64023**
	B O C Gases Ltd	4.024700727	1.96	0.77592862	1.52082	2.503881	**12.22986**	4.024700727	1.96	0.77592862	1.52082	5.545521	**256.0879**
	Carbacid Investments Ltd	4.336586606	1.96	0.135869	0.266303	4.070283	**58.57356**	4.336586606	1.96	0.135869	0.266303	4.60289	**99.77223**
	Crown Berger Ltd	2.256604784	1.96	0.26370617	0.516864	1.739741	**5.695866**	2.256604784	1.96	0.26370617	0.516864	2.773469	**16.01409**
	Dunlop Kenya Ltd	4.629636422	1.96	1.13910977	2.232655	2.396981	**10.98995**	4.629636422	1.96	1.13910977	2.232655	6.862292	**955.5543**
	EA Cables Ltd	3.402014339	1.96	0.19744985	0.387002	3.015013	**20.38935**	3.402014339	1.96	0.19744985	0.387002	3.789016	**44.21288**
	EA Packaging Ltd	3.993803641	1.96	0.34896699	0.683975	3.309828	**27.38043**	3.993803641	1.96	0.34896699	0.683975	4.677779	**107.531**
	EA Portland Cement Ltd	3.619421744	1.96	0.41174723	0.807025	2.812397	**16.64978**	3.619421744	1.96	0.41174723	0.807025	4.426446	**83.63368**
	Firestone East Africa Ltd	3.231569421	1.96	0.24752814	0.485155	2.746414	**15.58664**	3.231569421	1.96	0.24752814	0.485155	3.716725	**41.12946**
	East Africa Breweries Ltd	4.103227547	1.96	0.17953838	0.351895	3.751332	**42.57777**	4.103227547	1.96	0.17953838	0.351895	4.455123	**86.06672**
	Kenya National Mills Ltd	3.900850437	1.96	0.24206266	0.474443	3.426408	**30.76592**	3.900850437	1.96	0.24206266	0.474443	4.375293	**79.46314**
	Kenya Oil Co Ltd	4.101649151	1.96	0.15392265	0.301688	3.799961	**44.69943**	4.101649151	1.96	0.15392265	0.301688	4.403338	**81.72317**
	Kenya Power & Lighting Ltd	5.630492581	1.96	0.33517451	0.656942	4.973551	**144.5392**	5.630492581	1.96	0.33517451	0.656942	6.287435	**537.772**
	Total Kenya Ltd	4.151710012	1.96	0.40010379	0.784203	3.367507	**29.00611**	4.151710012	1.96	0.40010379	0.784203	4.935913	**139.2002**
	Unga Group Ltd	5.013070127	1.96	0.27409913	0.537234	4.475836	**87.86801**	5.013070127	1.96	0.27409913	0.537234	5.550304	**257.3159**

ESTIMATION OF EXERCISE PRICE RANGES-January-June 1998

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	f LN(p0)+(E(R)-V2/2*0.5	g	h V*SQRT(0.5)	I	f+I	j
Agricultural	*Brooke Bond Kenya Limited*	4.829322585	1.96	0.16389331	0.321231	4.508092	**90.74848**	4.829322585	1.96	0.16389331	0.321231	5.150553	**172.527**
	Eaagads Limited	3.781314081	1.96	0.21019129	0.411975	3.369339	**29.05932**	3.781314081	1.96	0.21019129	0.411975	4.193289	**66.2403**
	George Williamson Kenya Ltd	4.810105978	1.96	0.16201944	0.317558	4.492548	**89.34881**	4.810105978	1.96	0.16201944	0.317558	5.127664	**168.6228**
	Kakuzi Ltd	4.790350746	1.96	0.18701352	0.366547	4.423804	**83.41301**	4.790350746	1.96	0.18701352	0.366547	5.156897	**173.6249**
	Kapchorua Tea Co Ltd	4.468067133	1.96	0.15856207	0.310782	4.157285	**63.89783**	4.468067133	1.96	0.15856207	0.310782	4.778849	**118.9673**
	Limuru Tea Co Ltd	6.684988397	1.96	0.01302376	0.025527	6.659462	**780.131**	6.684988397	1.96	0.01302376	0.025527	6.710515	**820.9933**
	Rea Vipingo Ltd	1.988148262	1.96	0.11162253	0.21878	1.769368	**5.867145**	1.988148262	1.96	0.11162253	0.21878	2.206928	**9.08776**
	Sasini Tea & Coffee Ltd	4.155219514	1.96	0.3127685	0.613026	3.542193	**34.5426**	4.155219514	1.96	0.3127685	0.613026	4.768246	**117.7126**
Finance & Investment	*Barclays Bank Ltd*	4.792403411	1.96	0.28154948	0.551837	4.240566	**69.44718**	4.792403411	1.96	0.28154948	0.551837	5.34424	**209.3988**
	City Trust Ltd	3.291370819	1.96	0.54447222	1.067166	2.224205	**9.246132**	3.291370819	1.96	0.54447222	1.067166	4.358536	**78.14268**
	CFC Bank Ltd	2.809598942	1.96	0.16970563	0.332623	2.476976	**11.90521**	2.809598942	1.96	0.16970563	0.332623	3.142222	**23.15526**
	Diamond Trust Bank Kenya Ltd	3.085577609	1.96	0.14142136	0.277186	2.808392	**16.58323**	3.085577609	1.96	0.14142136	0.277186	3.362763	**28.86886**
	Housing Finance Co (K) Ltd	2.783952175	1.96	0.22627417	0.443497	2.340455	**10.38596**	2.783952175	1.96	0.22627417	0.443497	3.22745	**25.21526**
	ICDC Investments Co Ltd	3.662152769	1.96	0.26162951	0.512794	3.149359	**23.32111**	3.662152769	1.96	0.26162951	0.512794	4.174947	**65.03637**
	Jubilee Insurance Co Ltd	3.441897688	1.96	0.13435029	0.263327	3.178571	**24.01242**	3.441897688	1.96	0.13435029	0.263327	3.705224	**40.65916**
	Kenya Commercial Bank Ltd	4.296173083	1.96	0.16263456	0.318764	3.977409	**53.37857**	4.296173083	1.96	0.16263456	0.318764	4.614937	**100.9814**
	National Bank of Kenya Ltd	2.304807925	1.96	0.42426407	0.831558	1.47325	**4.363395**	2.304807925	1.96	0.42426407	0.831558	3.136365	**23.02005**
	National Industrial Credit Ltd	3.505261468	1.96	0.38183766	0.748402	2.75686	**15.7503**	3.505261468	1.96	0.38183766	0.748402	4.253663	**70.3627**
	Regent Undervalued Assets Africa Fund	6.363028104	1.96	0	0	6.363028	**580**	6.363028104	1.96	0	0	6.363028	**580**
	Pan Africa Insurance Ltd	3.148770553	1.96	0.12727922	0.249467	2.899303	**18.16149**	3.148770553	1.96	0.12727922	0.249467	3.398238	**29.91134**
	Standard Chartered Bank Ltd	3.895382341	1.96	0.24041631	0.471216	3.424166	**30.69704**	3.895382341	1.96	0.24041631	0.471216	4.366598	**78.77521**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed											
	A Baumann & Co Ltd	2.809891353	1.96	0.0785454	0.153949	2.655942	**14.2384**	2.809891353	1.96	0.0785454	0.153949	2.96384	**19.37222**
	CMC Holdings Ltd	3.572023826	1.96	0.20506097	0.401919	3.170104	**23.80997**	3.572023826	1.96	0.20506097	0.401919	3.973943	**53.19388**
	Car & General (K) Ltd	2.605265079	1.96	0.30405592	0.59595	2.009315	**7.45821**	2.605265079	1.96	0.30405592	0.59595	3.201215	**24.56235**
	Express Kenya Ltd	3.836944562	1.96	0.25455844	0.498935	3.33801	**28.16303**	3.836944562	1.96	0.25455844	0.498935	4.335879	**76.39209**
	Kenya Airways Ltd	2.093963108	1.96	0.1767767	0.346482	1.747481	**5.740124**	2.093963108	1.96	0.1767767	0.346482	2.440445	**11.47815**
	Lonhro Motors (EA) Ltd	3.429987928	1.96	0.1767767	0.346482	3.083506	**21.83481**	3.429987928	1.96	0.1767767	0.346482	3.77647	**43.66165**
	Marshalls (EA) Ltd	3.254717617	1.96	0.12020815	0.235608	3.01911	**20.47306**	3.254717617	1.96	0.12020815	0.235608	3.490326	**32.79662**
	Nation Media Group Ltd	4.735308604	1.96	0.57162871	1.120392	3.614916	**37.14824**	4.735308604	1.96	0.57162871	1.120392	5.855701	**349.2196**
	Pearl Drycleaners Ltd	2.327165733	1.96	0.02828427	0.055437	2.271729	**9.696147**	2.327165733	1.96	0.02828427	0.055437	2.382603	**10.83306**
	Standard Newspapers Ltd	3.102573403	1.96	0.65053824	1.275055	1.827518	**6.218436**	3.102573403	1.96	0.65053824	1.275055	4.377628	**79.64891**
	Tourism Promotion Services (Serena)	2.636460901	1.96	0.2192031	0.429638	2.206823	**9.0868**	2.636460901	1.96	0.2192031	0.429638	3.066099	**21.45803**
	Uchumi Supermarkets Ltd	3.766565727	1.96	0.2192031	0.429638	3.336928	**28.13256**	3.766565727	1.96	0.2192031	0.429638	4.196204	**66.43366**
Industrial and Allied	*Athi River Mining Ltd*	2.014864354	1.96	0.33941125	0.665246	1.349618	**3.855953**	2.014864354	1.96	0.33941125	0.665246	2.68011	**14.5867**
	Bamburi Cement Ltd	3.552950345	1.96	0.32526912	0.637527	2.915423	**18.45662**	3.552950345	1.96	0.32526912	0.637527	4.190478	**66.05435**
	British American Tobacco Ltd	4.273154914	1.96	0.06363961	0.124734	4.148421	**63.33393**	4.273154914	1.96	0.06363961	0.124734	4.397889	**81.27907**
	B O C Gases Ltd	3.591801696	1.96	0.32526912	0.637527	2.954274	**19.18779**	3.591801696	1.96	0.32526912	0.637527	4.229329	**68.67115**
	Carbacid Investments Ltd	4.147123005	1.96	0.24041631	0.471216	3.675907	**39.48445**	4.147123005	1.96	0.24041631	0.471216	4.618339	**101.3256**
	Crown Berger Ltd	2.226685093	1.96	0.31112698	0.609809	1.616876	**5.03733**	2.226685093	1.96	0.31112698	0.609809	2.836494	**17.05586**
	Dunlop Kenya Ltd	2.878632274	1.96	0.50911688	0.997869	1.880763	**6.558508**	2.878632274	1.96	0.50911688	0.997869	3.876501	**48.25509**
	EA Cables Ltd	3.191098416	1.96	0.20506097	0.401919	2.789179	**16.26766**	3.191098416	1.96	0.20506097	0.401919	3.593018	**36.34359**
	EA Packaging Ltd	3.504778972	1.96	0.30405592	0.59595	2.908829	**18.33532**	3.504778972	1.96	0.30405592	0.59595	4.100729	**60.38427**
	EA Portland Cement Ltd	2.995107274	1.96	0.1767767	0.346482	2.648625	**14.13459**	2.995107274	1.96	0.1767767	0.346482	3.34159	**28.26402**
	Firestone East Africa Ltd	2.798753229	1.96	0.20506097	0.401919	2.396834	**10.98833**	2.798753229	1.96	0.20506097	0.401919	3.200673	**24.54904**
	East Africa Breweries Ltd	4.117967678	1.96	0.25455844	0.498935	3.619033	**37.30148**	4.117967678	1.96	0.25455844	0.498935	4.616902	**101.1801**
	Kenya National Mills Ltd	2.691086716	1.96	0.41012193	0.803839	1.887248	**6.601175**	2.691086716	1.96	0.41012193	0.803839	3.494926	**32.94784**
	Kenya Oil Co Ltd	3.985832266	1.96	0.15556349	0.304904	3.680928	**39.6832**	3.985832266	1.96	0.15556349	0.304904	4.290737	**73.02024**
	Kenya Power & Lighting Ltd	4.795718724	1.96	0.19091883	0.374201	4.421518	**83.22251**	4.795718724	1.96	0.19091883	0.374201	5.16992	**175.9007**
	Total Kenya Ltd	3.875169122	1.96	0.27577164	0.540512	3.334657	**28.06875**	3.875169122	1.96	0.27577164	0.540512	4.415682	**82.73821**
	Unga Group Ltd	3.475107274	1.96	0.67175144	1.316633	2.158474	**8.657919**	3.475107274	1.96	0.67175144	1.316633	4.79174	**120.5109**

ESTIMATION OF EXERCISE PRICE RANGES-JULY-DECEMBER 199

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	f LN(p0)+(E(R)-V2/2*0.5	g	h V*SQRT(0.5)	I	f+I	j
Agricultural	*Brooke Bond Kenya Limited*	5.009368828	1.96	0.16389331	0.321231	4.688138	**108.6507**	5.009368828	1.96	0.16389331	0.321231	5.3306	**206.5618**
	Eaagads Limited	3.666538567	1.96	0.21019129	0.411975	3.254564	**25.90831**	3.666538567	1.96	0.21019129	0.411975	4.078513	**59.05762**
	George Williamson Kenya Ltd	5.306846862	1.96	0.16201944	0.317558	4.989289	**146.832**	5.306846862	1.96	0.16201944	0.317558	5.624405	**277.1073**
	Kakuzi Ltd	5.181125139	1.96	0.18701352	0.366547	4.814579	**123.2948**	5.181125139	1.96	0.18701352	0.366547	5.547672	**256.6393**
	Kapchorua Tea Co Ltd	4.543704548	1.96	0.15856207	0.310782	4.232923	**68.91838**	4.543704548	1.96	0.15856207	0.310782	4.854486	**128.3147**
	Limuru Tea Co Ltd	6.69163294	1.96	0.01302376	0.025527	6.666106	**785.3319**	6.69163294	1.96	0.01302376	0.025527	6.71716	**826.4666**
	Rea Vipingo Ltd	1.740312098	1.96	0.11162253	0.21878	1.521532	**4.579235**	1.740312098	1.96	0.11162253	0.21878	1.959092	**7.092886**
	Sasini Tea & Coffee Ltd	4.351756142	1.96	0.3127685	0.613026	3.73873	**42.04455**	4.351756142	1.96	0.3127685	0.613026	4.964782	**143.2774**
Finance & Investment	*Barclays Bank Ltd*	4.658872019	1.96	0.28154948	0.551837	4.107035	**60.76628**	4.658872019	1.96	0.28154948	0.551837	5.210709	**183.2239**
	City Trust Ltd	3.218167415	1.96	0.54447222	1.067166	2.151002	**8.593464**	3.218167415	1.96	0.54447222	1.067166	4.285333	**72.62673**
	CFC Bank Ltd	2.780442358	1.96	0.16970563	0.332623	2.447819	**11.5631**	2.780442358	1.96	0.16970563	0.332623	3.113065	**22.48988**
	Diamond Trust Bank Kenya Ltd	3.081042453	1.96	0.14142136	0.277186	2.803857	**16.50819**	3.081042453	1.96	0.14142136	0.277186	3.358228	**28.73823**
	Housing Finance Co (K) Ltd	2.828688069	1.96	0.22627417	0.443497	2.385191	**10.86113**	2.828688069	1.96	0.22627417	0.443497	3.272185	**26.3689**
	ICDC Investments Co Ltd	3.770074105	1.96	0.26162951	0.512794	3.25728	**25.97879**	3.770074105	1.96	0.26162951	0.512794	4.282868	**72.44792**
	Jubilee Insurance Co Ltd	3.415752408	1.96	0.13435029	0.263327	3.152426	**23.39274**	3.415752408	1.96	0.13435029	0.263327	3.679079	**39.6099**
	Kenya Commercial Bank Ltd	4.173955451	1.96	0.16263456	0.318764	3.855192	**47.23767**	4.173955451	1.96	0.16263456	0.318764	4.492719	**89.36411**
	National Bank of Kenya Ltd	2.320556282	1.96	0.42426407	0.831558	1.488999	**4.432655**	2.320556282	1.96	0.42426407	0.831558	3.152114	**23.38545**
	National Industrial Credit Ltd	3.305964966	1.96	0.38183766	0.748402	2.557563	**12.90433**	3.305964966	1.96	0.38183766	0.748402	4.054367	**57.64865**
	Regent Undervalued Assets Africa Fund	6.363028104	1.96	0	0	6.363028	**580**	6.363028104	1.96	0	0	6.363028	**580**
	Pan Africa Insurance Ltd	2.819466806	1.96	0.12727922	0.249467	2.57	**13.06582**	2.819466806	1.96	0.12727922	0.249467	3.068934	**21.51895**
	Standard Chartered Bank Ltd	3.772597321	1.96	0.24041631	0.471216	3.301381	**27.15012**	3.772597321	1.96	0.24041631	0.471216	4.243813	**69.67303**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed											
	A Baumann & Co Ltd	2.803460462	1.96	0.0785454	0.153949	2.649511	**14.14713**	2.803460462	1.96	0.0785454	0.153949	2.957409	**19.24804**
	CMC Holdings Ltd	3.463810241	1.96	0.20506097	0.401919	3.061891	**21.36792**	3.463810241	1.96	0.20506097	0.401919	3.86573	**47.7381**
	Car & General (K) Ltd	2.233390916	1.96	0.30405592	0.59595	1.637441	**5.141996**	2.233390916	1.96	0.30405592	0.59595	2.829341	**16.93429**
	Express Kenya Ltd	3.143797382	1.96	0.25455844	0.498935	2.644863	**14.08151**	3.143797382	1.96	0.25455844	0.498935	3.642732	**38.19604**
	Kenya Airways Ltd	2.038393257	1.96	0.1767767	0.346482	1.691911	**5.429847**	2.038393257	1.96	0.1767767	0.346482	2.384876	**10.85771**
	Lonhro Motors (EA) Ltd	3.035995221	1.96	0.1767767	0.346482	2.689513	**14.7245**	3.035995221	1.96	0.1767767	0.346482	3.382478	**29.44363**
	Marshalls (EA) Ltd	3.331820011	1.96	0.12020815	0.235608	3.096212	**22.11403**	3.331820011	1.96	0.12020815	0.235608	3.567428	**35.42536**
	Nation Media Group Ltd	4.596930319	1.96	0.57162871	1.120392	3.476538	**32.34754**	4.596930319	1.96	0.57162871	1.120392	5.717323	**304.0897**
	Pearl Drycleaners Ltd	2.307934371	1.96	0.02828427	0.055437	2.252497	**9.511458**	2.307934371	1.96	0.02828427	0.055437	2.363372	**10.62672**
	Standard Newspapers Ltd	3.03469598	1.96	0.65053824	1.275055	1.759641	**5.810351**	3.03469598	1.96	0.65053824	1.275055	4.309751	**74.42195**
	Tourism Promotion Services (Serena)	2.562352929	1.96	0.2192031	0.429638	2.132715	**8.437743**	2.562352929	1.96	0.2192031	0.429638	2.991991	**19.92531**
	Uchumi Supermarkets Ltd	3.880509986	1.96	0.2192031	0.429638	3.450872	**31.52787**	3.880509986	1.96	0.2192031	0.429638	4.310148	**74.45151**
Industrial and Allied	*Athi River Mining Ltd*	1.992885447	1.96	0.33941125	0.665246	1.327639	**3.772128**	1.992885447	1.96	0.33941125	0.665246	2.658132	**14.2696**
	Bamburi Cement Ltd	3.500233563	1.96	0.32526912	0.637527	2.862706	**17.50884**	3.500233563	1.96	0.32526912	0.637527	4.137761	**62.66237**
	British American Tobacco Ltd	4.303232369	1.96	0.06363961	0.124734	4.178499	**65.2678**	4.303232369	1.96	0.06363961	0.124734	4.427966	**83.76087**
	B O C Gases Ltd	3.539084914	1.96	0.32526912	0.637527	2.901557	**18.20247**	3.539084914	1.96	0.32526912	0.637527	4.176612	**65.14479**
	Carbacid Investments Ltd	4.039537795	1.96	0.24041631	0.471216	3.568322	**35.45704**	4.039537795	1.96	0.24041631	0.471216	4.510754	**90.99038**
	Crown Berger Ltd	2.164809689	1.96	0.31112698	0.609809	1.555001	**4.73509**	2.164809689	1.96	0.31112698	0.609809	2.774619	**16.03251**
	Dunlop Kenya Ltd	3.31041469	1.96	0.50911688	0.997869	2.312546	**10.1001**	3.31041469	1.96	0.50911688	0.997869	4.308284	**74.31284**
	EA Cables Ltd	2.919380195	1.96	0.20506097	0.401919	2.517461	**12.39708**	2.919380195	1.96	0.20506097	0.401919	3.3213	**27.69632**
	EA Packaging Ltd	2.608690947	1.96	0.30405592	0.59595	2.012741	**7.483805**	2.608690947	1.96	0.30405592	0.59595	3.204641	**24.64664**
	EA Portland Cement Ltd	3.094952609	1.96	0.1767767	0.346482	2.74847	**15.61872**	3.094952609	1.96	0.1767767	0.346482	3.441435	**31.23174**
	Firestone East Africa Ltd	2.871512583	1.96	0.20506097	0.401919	2.469593	**11.81764**	2.871512583	1.96	0.20506097	0.401919	3.273432	**26.4018**
	East Africa Breweries Ltd	4.250456861	1.96	0.25455844	0.498935	3.751522	**42.58586**	4.250456861	1.96	0.25455844	0.498935	4.749391	**115.514**
	Kenya National Mills Ltd	3.180201854	1.96	0.41012193	0.803839	2.376363	**10.76568**	3.180201854	1.96	0.41012193	0.803839	3.984041	**53.73373**
	Kenya Oil Co Ltd	3.985832266	1.96	0.15556349	0.304904	3.680928	**39.6832**	3.985832266	1.96	0.15556349	0.304904	4.290737	**73.02024**
	Kenya Power & Lighting Ltd	4.862729434	1.96	0.19091883	0.374201	4.488529	**88.9904**	4.862729434	1.96	0.19091883	0.374201	5.23693	**188.0918**
	Total Kenya Ltd	3.637636833	1.96	0.27577164	0.540512	3.097124	**22.13421**	3.637636833	1.96	0.27577164	0.540512	4.178149	**65.24499**
	Unga Group Ltd	4.553516855	1.96	0.67175144	1.316633	3.236884	**25.45428**	4.553516855	1.96	0.67175144	1.316633	5.87015	**354.302**

Eexercise prices range:July-December-1998

ESTIMATION OF EXERCISE PRICE RANGES-January-June 1999

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5	d b*c	a-d	e	f LN(p0)+(E(R)-V2/2*0.5	g	h V*SQRT(0.5)	i	f+i	j
Agricultural	*Brooke Bond Kenya Limited*	4.787596383	1.96	0.27609369	0.541144	4.246453	**69.85717**	4.787596383	1.96	0.27609369	0.541144	5.32874	**206.178**
	Eaagads Limited	3.490314091	1.96	0.42642684	0.835797	2.654517	**14.21812**	3.490314091	1.96	0.42642684	0.835797	4.326111	**75.64949**
	George Williamson Kenya Ltd	4.771422101	1.96	0.1577604	0.30921	4.462212	**86.67901**	4.771422101	1.96	0.1577604	0.30921	5.080632	**160.8758**
	Kakuzi Ltd	4.749324418	1.96	0.18813763	0.36875	4.380575	**79.88393**	4.749324418	1.96	0.18813763	0.36875	5.118074	**167.0134**
	Kapchorua Tea Co Ltd	4.842697162	1.96	0.16620053	0.325753	4.516944	**91.55539**	4.842697162	1.96	0.16620053	0.325753	5.16845	**175.6424**
	Limuru Tea Co Ltd	6.594312673	1.96	0.11055337	0.216685	6.377628	**588.5301**	6.594312673	1.96	0.11055337	0.216685	6.810997	**907.7757**
	Rea Vipingo Ltd	1.681705651	1.96	0.1418014	0.277931	1.403775	**4.070537**	1.681705651	1.96	0.1418014	0.277931	1.959636	**7.096746**
	Sasini Tea & Coffee Ltd	4.052803426	1.96	0.18997623	0.372353	3.68045	**39.66424**	4.052803426	1.96	0.18997623	0.372353	4.425157	**83.52591**
Finance & Investment	*Barclays Bank Ltd*	4.778382911	1.96	0.14142136	0.277186	4.501197	**90.12495**	4.778382911	1.96	0.14142136	0.277186	5.055569	**156.8937**
	City Trust Ltd	3.180406962	1.96	0.09899495	0.19403	2.986377	**19.81376**	3.180406962	1.96	0.09899495	0.19403	3.374437	**29.20784**
	CFC Bank Ltd	2.723481812	1.96	0.30405592	0.59595	2.127532	**8.394126**	2.723481812	1.96	0.30405592	0.59595	3.319431	**27.64463**
	Diamond Trust Bank Kenya Ltd	3.175417453	1.96	0.1767767	0.346482	2.828935	**16.92743**	3.175417453	1.96	0.1767767	0.346482	3.5219	**33.84867**
	Housing Finance Co (K) Ltd	2.617914924	1.96	0.1979899	0.38806	2.229855	**9.298515**	2.617914924	1.96	0.1979899	0.38806	3.005975	**20.20591**
	ICDC Investments Co Ltd	3.87297438	1.96	0.05656854	0.110874	3.7621	**43.03871**	3.87297438	1.96	0.05656854	0.110874	3.983849	**53.7234**
	Jubilee Insurance Co Ltd	3.306338554	1.96	0.16263456	0.318764	2.987575	**19.83751**	3.306338554	1.96	0.16263456	0.318764	3.625102	**37.52856**
	Kenya Commercial Bank Ltd	3.862307	1.96	0.16263456	0.318764	3.543543	**34.58926**	3.862307	1.96	0.16263456	0.318764	4.181071	**65.43588**
	National Bank of Kenya Ltd	1.921434878	1.96	0.20506097	0.401919	1.519515	**4.57001**	1.921434878	1.96	0.20506097	0.401919	2.323354	**10.20986**
	National Industrial Credit Ltd	3.373797382	1.96	0.09899495	0.19403	3.179767	**24.04116**	3.373797382	1.96	0.09899495	0.19403	3.567827	**35.43952**
	Regent Undervalued Assets Africa Fund	6.362998401	1.96	-0.0077075	-0.01511	6.378105	**588.8109**	6.362998401	1.96	-0.0077075	-0.01511	6.347892	**571.287**
	Pan Africa Insurance Ltd	2.846228031	1.96	0.77074639	1.510663	1.335565	**3.802144**	2.846228031	1.96	0.77074639	1.510663	4.356891	**78.01421**
	Standard Chartered Bank Ltd	3.99070675	1.96	0.10606602	0.207889	3.782817	**43.93966**	3.99070675	1.96	0.10606602	0.207889	4.198596	**66.59278**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed											
	A Baumann & Co Ltd	2.801524273	1.96	0.08485281	0.166312	2.635213	**13.94628**	2.801524273	1.96	0.08485281	0.166312	2.967836	**19.44978**
	CMC Holdings Ltd	3.456016652	1.96	0.11313708	0.221749	3.234268	**25.38778**	3.456016652	1.96	0.11313708	0.221749	3.677765	**39.5579**
	Car & General (K) Ltd	2.08428165	1.96	0.74246212	1.455226	0.629056	**1.875839**	2.08428165	1.96	0.74246212	1.455226	3.539507	**34.44995**
	Express Kenya Ltd	3.123801298	1.96	0.34648232	0.679105	2.444696	**11.52704**	3.123801298	1.96	0.34648232	0.679105	3.802907	**44.8313**
	Kenya Airways Ltd	2.035320543	1.96	0.27577164	0.540512	1.494808	**4.458481**	2.035320543	1.96	0.27577164	0.540512	2.575833	**13.14226**
	Lonhro Motors (EA) Ltd	2.857215181	1.96	0.26870058	0.526653	2.330562	**10.28372**	2.857215181	1.96	0.26870058	0.526653	3.383868	**29.48461**
	Marshalls (EA) Ltd	3.181850825	1.96	0.13435029	0.263327	2.918524	**18.51395**	3.181850825	1.96	0.13435029	0.263327	3.445177	**31.34884**
	Nation Media Group Ltd	4.78352933	1.96	0.15556349	0.304904	4.478625	**88.11342**	4.78352933	1.96	0.15556349	0.304904	5.088434	**162.1357**
	Pearl Drycleaners Ltd	1.592585093	1.96	0.84852814	1.663115	-0.07053	**0.9319**	1.592585093	1.96	0.84852814	1.663115	3.2557	**25.93777**
	Standard Newspapers Ltd	2.479848857	1.96	0.79195959	1.552241	0.927608	**2.528454**	2.479848857	1.96	0.79195959	1.552241	4.03209	**56.3786**
	Tourism Promotion Services (Serena)	2.722921063	1.96	0.11313708	0.221749	2.501172	**12.19678**	2.722921063	1.96	0.11313708	0.221749	2.94467	**19.00439**
	Uchumi Supermarkets Ltd	3.76482827	1.96	0.19091883	0.374201	3.390627	**29.68457**	3.76482827	1.96	0.19091883	0.374201	4.139029	**62.74188**
Industrial and Allied	*Athi River Mining Ltd*	1.756255744	1.96	0.29698485	0.58209	1.174165	**3.235442**	1.756255744	1.96	0.29698485	0.58209	2.338346	**10.36408**
	Bamburi Cement Ltd	3.442132827	1.96	0.2192031	0.429638	3.012495	**20.33808**	3.442132827	1.96	0.2192031	0.429638	3.871771	**48.02736**
	British American Tobacco Ltd	4.252885796	1.96	0.19091883	0.374201	3.878685	**48.36057**	4.252885796	1.96	0.19091883	0.374201	4.627087	**102.2158**
	B O C Gases Ltd	3.460188383	1.96	0.2192031	0.429638	3.03055	**20.70863**	3.460188383	1.96	0.2192031	0.429638	3.889826	**48.9024**
	Carbacid Investments Ltd	4.345677506	1.96	0.20506097	0.401919	3.943758	**51.6122**	4.345677506	1.96	0.20506097	0.401919	4.747597	**115.3069**
	Crown Berger Ltd	2.212839062	1.96	0.48790368	0.956291	1.256548	**3.513272**	2.212839062	1.96	0.48790368	0.956291	3.16913	**23.78679**
	Dunlop Kenya Ltd	2.669507274	1.96	0.40305087	0.78998	1.879528	**6.55041**	2.669507274	1.96	0.40305087	0.78998	3.459487	**31.80066**
	EA Cables Ltd	2.830132274	1.96	0.48083261	0.942432	1.8877	**6.604164**	2.830132274	1.96	0.48083261	0.942432	3.772564	**43.49144**
	EA Packaging Ltd	2.401621476	1.96	0.36062446	0.706824	1.694798	**5.445543**	2.401621476	1.96	0.36062446	0.706824	3.108445	**22.38622**
	EA Portland Cement Ltd	2.39985572	1.96	0.75660426	1.482944	0.916911	**2.501552**	2.39985572	1.96	0.75660426	1.482944	3.8828	**48.56**
	Firestone East Africa Ltd	2.798580763	1.96	0.16970563	0.332623	2.465958	**11.77475**	2.798580763	1.96	0.16970563	0.332623	3.131204	**22.90153**
	East Africa Breweries Ltd	4.280070024	1.96	0.14142136	0.277186	4.002884	**54.75585**	4.280070024	1.96	0.14142136	0.277186	4.557256	**95.32155**
	Kenya National Mills Ltd	2.464400109	1.96	0.54447222	1.067166	1.397235	**4.044001**	2.464400109	1.96	0.54447222	1.067166	3.531566	**34.17744**
	Kenya Oil Co Ltd	4.079596822	1.96	0.29698485	0.58209	3.497507	**33.03298**	4.079596822	1.96	0.29698485	0.58209	4.661687	**105.8145**
	Kenya Power & Lighting Ltd	4.714210275	1.96	0.1767767	0.346482	4.367728	**78.86424**	4.714210275	1.96	0.1767767	0.346482	5.060693	**157.6997**
	Total Kenya Ltd	3.896603461	1.96	0.1767767	0.346482	3.550121	**34.81753**	3.896603461	1.96	0.1767767	0.346482	4.243086	**69.62236**
	Unga Group Ltd	3.361518346	1.96	0.72831998	1.427507	1.934011	**6.917201**	3.361518346	1.96	0.72831998	1.427507	4.789026	**120.1842**

ESTIMATION OF EXERCISE PRICE RANGES-JULY-DECEMBER,19

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5	d b*c	a-d	e	LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5	d b*c	a-d	e
Agricultural	*Brooke Bond Kenya Limited*	4.826638221	1.96	0.27609369	0.541144	4.285495	**72.63846**	4.826638221	1.96	0.27609369	0.541144	5.367782	**214.3868**
	Eaagads Limited	3.464127818	1.96	0.42642684	0.835797	2.628331	**13.85064**	3.464127818	1.96	0.42642684	0.835797	4.299924	**73.69422**
	George Williamson Kenya Ltd	4.785400458	1.96	0.1577604	0.30921	4.47619	**87.89914**	4.785400458	1.96	0.1577604	0.30921	5.094611	**163.1403**
	Kakuzi Ltd	4.593121649	1.96	0.18813763	0.36875	4.224372	**68.33157**	4.593121649	1.96	0.18813763	0.36875	4.961871	**142.8609**
	Kapchorua Tea Co Ltd	5.301823986	1.96	0.16620053	0.325753	4.976071	**144.9039**	5.301823986	1.96	0.16620053	0.325753	5.627577	**277.9877**
	Limuru Tea Co Ltd	6.435861339	1.96	0.11055337	0.216685	6.219177	**502.2895**	6.435861339	1.96	0.11055337	0.216685	6.652546	**774.7543**
	Rea Vipingo Ltd	1.681705651	1.96	0.1418014	0.277931	1.403775	**4.070537**	1.681705651	1.96	0.1418014	0.277931	1.959636	**7.096746**
	Sasini Tea & Coffee Ltd	3.795938563	1.96	0.18997623	0.372353	3.423585	**30.67921**	3.795938563	1.96	0.18997623	0.372353	4.168292	**64.60501**
Finance & Investment	*Barclays Bank Ltd*	4.636837375	1.96	0.14142136	0.277186	4.359652	**78.22987**	4.636837375	1.96	0.14142136	0.277186	4.914023	**136.1862**
	City Trust Ltd	3.033615309	1.96	0.09899495	0.19403	2.839585	**17.10867**	3.033615309	1.96	0.09899495	0.19403	3.227645	**25.2202**
	CFC Bank Ltd	2.688469744	1.96	0.30405592	0.59595	2.09252	**8.105316**	2.688469744	1.96	0.30405592	0.59595	3.284419	**26.69348**
	Diamond Trust Bank Kenya Ltd	3.258253459	1.96	0.1767767	0.346482	2.911771	**18.38934**	3.258253459	1.96	0.1767767	0.346482	3.604736	**36.77197**
	Housing Finance Co (K) Ltd	2.41301223	1.96	0.1979899	0.38806	2.024952	**7.575748**	2.41301223	1.96	0.1979899	0.38806	2.801072	**16.46229**
	ICDC Investments Co Ltd	4.010831561	1.96	0.05656854	0.110874	3.899957	**49.40034**	4.010831561	1.96	0.05656854	0.110874	4.121706	**61.66435**
	Jubilee Insurance Co Ltd	3.243164145	1.96	0.16263456	0.318764	2.9244	**18.62306**	3.243164145	1.96	0.16263456	0.318764	3.561928	**35.23105**
	Kenya Commercial Bank Ltd	3.52368932	1.96	0.16263456	0.318764	3.204926	**24.65367**	3.52368932	1.96	0.16263456	0.318764	3.842453	**46.63974**
	National Bank of Kenya Ltd	1.609524633	1.96	0.20506097	0.401919	1.207605	**3.345463**	1.609524633	1.96	0.20506097	0.401919	2.011444	**7.474103**
	National Industrial Credit Ltd	3.326997123	1.96	0.09899495	0.19403	3.132967	**22.94195**	3.326997123	1.96	0.09899495	0.19403	3.521027	**33.81915**
	Pan Africa Insurance Ltd	3.21102883	1.96	0.77074639	1.510663	1.700366	**5.475951**	3.21102883	1.96	0.77074639	1.510663	4.721692	**112.3582**
	Standard Chartered Bank Ltd	3.939152396	1.96	0.10606602	0.207889	3.731263	**41.73178**	3.939152396	1.96	0.10606602	0.207889	4.147042	**63.24663**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed											
	A Baumann & Co Ltd	2.803713622	1.96	0.08485281	0.166312	2.637402	**13.97685**	2.803713622	1.96	0.08485281	0.166312	2.970025	**19.49241**
	CMC Holdings Ltd	3.29080451	1.96	0.11313708	0.221749	3.069056	**21.52157**	3.29080451	1.96	0.11313708	0.221749	3.512553	**33.53378**
	Car & General (K) Ltd	1.901960093	1.96	0.74246212	1.455226	0.446734	**1.563199**	1.901960093	1.96	0.74246212	1.455226	3.357186	**28.70829**
	Express Kenya Ltd	3.008653452	1.96	0.34648232	0.679105	2.329548	**10.2733**	3.008653452	1.96	0.34648232	0.679105	3.687759	**39.9552**
	Kenya Airways Ltd	2.021416542	1.96	0.27577164	0.540512	1.480904	**4.396919**	2.021416542	1.96	0.27577164	0.540512	2.561929	**12.96079**
	Lonhro Motors (EA) Ltd	2.597113344	1.96	0.26870058	0.526653	2.07046	**7.928471**	2.597113344	1.96	0.26870058	0.526653	3.123766	**22.73184**
	Marshalls (EA) Ltd	3.052017453	1.96	0.13435029	0.263327	2.788691	**16.25972**	3.052017453	1.96	0.13435029	0.263327	3.315344	**27.53186**
	Nation Media Group Ltd	4.72543445	1.96	0.15556349	0.304904	4.42053	**83.14034**	4.72543445	1.96	0.15556349	0.304904	5.030339	**152.9848**
	Pearl Drycleaners Ltd	1.592585093	1.96	0.84852814	1.663115	-0.07053	**0.9319**	1.592585093	1.96	0.84852814	1.663115	3.2557	**25.93777**
	Standard Newspapers Ltd	2.06045733	1.96	0.79195959	1.552241	0.508217	**1.662324**	2.06045733	1.96	0.79195959	1.552241	3.612698	**37.06593**
	Tourism Promotion Services (Serena)	2.51881683	1.96	0.11313708	0.221749	2.297068	**9.944982**	2.51881683	1.96	0.11313708	0.221749	2.740566	**15.49575**
	Uchumi Supermarkets Ltd	3.857134021	1.96	0.19091883	0.374201	3.482933	**32.55507**	3.857134021	1.96	0.19091883	0.374201	4.231335	**68.80903**
Industrial and Allied	*Athi River Mining Ltd*	1.671366175	1.96	0.29698485	0.58209	1.089276	**2.972121**	1.671366175	1.96	0.29698485	0.58209	2.253456	**9.520587**
	Bamburi Cement Ltd	3.119071538	1.96	0.2192031	0.429638	2.689433	**14.72333**	3.119071538	1.96	0.2192031	0.429638	3.54871	**34.76842**
	British American Tobacco Ltd	4.25647245	1.96	0.19091883	0.374201	3.882272	**48.53434**	4.25647245	1.96	0.19091883	0.374201	4.630673	**102.5831**
	B O C Gases Ltd	3.134071538	1.96	0.2192031	0.429638	2.704433	**14.94585**	3.134071538	1.96	0.2192031	0.429638	3.56371	**35.29388**
	Carbacid Investments Ltd	4.56914782	1.96	0.20506097	0.401919	4.167228	**64.53633**	4.56914782	1.96	0.20506097	0.401919	4.971067	**144.1807**
	Crown Berger Ltd	2.261041163	1.96	0.48790368	0.956291	1.30475	**3.686767**	2.261041163	1.96	0.48790368	0.956291	3.217332	**24.96144**
	Dunlop Kenya Ltd	2.381825201	1.96	0.40305087	0.78998	1.591846	**4.912807**	2.381825201	1.96	0.40305087	0.78998	3.171805	**23.85049**
	EA Cables Ltd	2.809929566	1.96	0.48083261	0.942432	1.867498	**6.472081**	2.809929566	1.96	0.48083261	0.942432	3.752361	**42.62161**
	EA Packaging Ltd	2.29903233	1.96	0.36062446	0.706824	1.592208	**4.91459**	2.29903233	1.96	0.36062446	0.706824	3.005856	**20.20351**
	EA Portland Cement Ltd	2.207923649	1.96	0.75660426	1.482944	0.724979	**2.064688**	2.207923649	1.96	0.75660426	1.482944	3.690868	**40.07962**
	Firestone East Africa Ltd	2.823960381	1.96	0.16970563	0.332623	2.491337	**12.07742**	2.823960381	1.96	0.16970563	0.332623	3.156583	**23.4902**
	East Africa Breweries Ltd	4.395103281	1.96	0.14142136	0.277186	4.117917	**61.43117**	4.395103281	1.96	0.14142136	0.277186	4.672289	**106.9423**
	Kenya National Mills Ltd	2.27083233	1.96	0.54447222	1.067166	1.203667	**3.332313**	2.27083233	1.96	0.54447222	1.067166	3.337998	**28.16269**
	Kenya Oil Co Ltd	4.40163334	1.96	0.29698485	0.58209	3.819543	**45.58337**	4.40163334	1.96	0.29698485	0.58209	4.983724	**146.0171**
	Kenya Power & Lighting Ltd	4.596604258	1.96	0.1767767	0.346482	4.250122	**70.11396**	4.596604258	1.96	0.1767767	0.346482	4.943087	**140.2023**
	Total Kenya Ltd	3.854522602	1.96	0.1767767	0.346482	3.50804	**33.38278**	3.854522602	1.96	0.1767767	0.346482	4.201005	**66.75338**
	Unga Group Ltd	2.946982819	1.96	0.72831998	1.427507	1.519476	**4.569828**	2.946982819	1.96	0.72831998	1.427507	4.37449	**79.39933**

ESTIMATION OF EXERCISE PRICE RANGES-January-June 2000

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	f LN(p0)+(E(R)-V2/2*0.5	g	h V*SQRT(0.5)	i	j	k
Agricultural	*Brooke Bond Kenya Limited*	4.61392878	1.96	0.19748826	0.387077	4.226852	**68.50124**	4.61392878	1.96	0.19748826	0.387077	5.001006	**148.5625**
	Eaagads Limited	3.118230241	1.96	0.14591493	0.285993	2.832237	**16.98341**	3.118230241	1.96	0.14591493	0.285993	3.404224	**30.09092**
	George Williamson Kenya Ltd	4.516076505	1.96	0.30487027	0.597546	3.918531	**50.32645**	4.516076505	1.96	0.30487027	0.597546	5.113622	**166.2715**
	Kakuzi Ltd	4.313409652	1.96	0.20587244	0.40351	3.9099	**49.89395**	4.313409652	1.96	0.20587244	0.40351	4.71692	**111.8233**
	Kapchorua Tea Co Ltd	5.018968627	1.96	0	0	5.018969	**151.2552**	5.018968627	1.96	0	0	5.018969	**151.2552**
	Limuru Tea Co Ltd	6.519280055	1.96	0	0	6.51928	**678.09**	6.519280055	1.96	0	0	6.51928	**678.09**
	Rea Vipingo Ltd	1.400494895	1.96	0.15507414	0.303945	1.09655	**2.993818**	1.400494895	1.96	0.15507414	0.303945	1.70444	**5.498307**
	Sasini Tea & Coffee Ltd	3.685055835	1.96	0.21213203	0.415779	3.269277	**26.29232**	3.685055835	1.96	0.21213203	0.415779	4.100835	**60.39067**
Finance & Investment	*Barclays Bank Ltd*	4.401208722	1.96	0.25455844	0.498935	3.902274	**49.51493**	4.401208722	1.96	0.25455844	0.498935	4.900143	**134.309**
	City Trust Ltd	3.15588109	1.96	0.13435029	0.263327	2.892555	**18.03933**	3.15588109	1.96	0.13435029	0.263327	3.419208	**30.5452**
	CFC Bank Ltd	2.345168	1.96	0.28284271	0.554372	1.790796	**5.994224**	2.345168	1.96	0.28284271	0.554372	2.89954	**18.16578**
	Diamond Trust Bank Kenya Ltd	3.013994615	1.96	0.20506097	0.401919	2.612075	**13.6273**	3.013994615	1.96	0.20506097	0.401919	3.415914	**30.44477**
	Housing Finance Co (K) Ltd	1.824055416	1.96	0.78488853	1.538382	0.285674	**1.330658**	1.824055416	1.96	0.78488853	1.538382	3.362437	**28.85943**
	ICDC Investments Co Ltd	3.888798005	1.96	0.19091883	0.374201	3.514597	**33.60239**	3.888798005	1.96	0.19091883	0.374201	4.262999	**71.02266**
	Jubilee Insurance Co Ltd	3.251296531	1.96	0.16970563	0.332623	2.918674	**18.51671**	3.251296531	1.96	0.16970563	0.332623	3.58392	**36.01443**
	Kenya Commercial Bank Ltd	3.137872355	1.96	0.24041631	0.471216	2.666656	**14.39177**	3.137872355	1.96	0.24041631	0.471216	3.609088	**36.93237**
	National Bank of Kenya Ltd	1.359412912	1.96	0.36062446	0.706824	0.652589	**1.920507**	1.359412912	1.96	0.36062446	0.706824	2.066237	**7.895057**
	National Industrial Credit Ltd	3.119848903	1.96	0.27577164	0.540512	2.579336	**13.18838**	3.119848903	1.96	0.27577164	0.540512	3.660361	**38.87539**
	Pan Africa Insurance Ltd	2.946666903	1.96	0.27577164	0.540512	2.406154	**11.09123**	2.946666903	1.96	0.27577164	0.540512	3.487179	**32.6936**
	Standard Chartered Bank Ltd	3.7779826	1.96	0.36062446	0.706824	3.071159	**21.56688**	3.7779826	1.96	0.36062446	0.706824	4.484807	**88.6598**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for a full year											
	A Baumann & Co Ltd	2.545950201	1.96	0.15556349	0.304904	2.241046	**9.40316**	2.545950201	1.96	0.15556349	0.304904	2.850855	**17.30256**
	CMC Holdings Ltd	3.137139048	1.96	0.19091883	0.374201	2.762938	**15.84633**	3.137139048	1.96	0.19091883	0.374201	3.51134	**33.49312**
	Car & General (K) Ltd	2.031880133	1.96	0.66468037	1.302774	0.729107	**2.073228**	2.031880133	1.96	0.66468037	1.302774	3.334654	**28.06866**
	Express Kenya Ltd	2.908481896	1.96	0.09192388	0.180171	2.728311	**15.30701**	2.908481896	1.96	0.09192388	0.180171	3.088653	**21.94749**
	Kenya Airways Ltd	2.197754774	1.96	0.1767767	0.346482	1.851272	**6.367917**	2.197754774	1.96	0.1767767	0.346482	2.544237	**12.73351**
	Marshalls (EA) Ltd	3.045314509	1.96	0.14142136	0.277186	2.768129	**15.9288**	3.045314509	1.96	0.14142136	0.277186	3.3225	**27.7296**
	Nation Media Group Ltd	4.458143042	1.96	0.12020815	0.235608	4.222535	**68.20617**	4.458143042	1.96	0.12020815	0.235608	4.693751	**109.2623**
	Pearl Drycleaners Ltd	0.923378955	1.96	0.18384776	0.360342	0.563037	**1.755998**	0.923378955	1.96	0.18384776	0.360342	1.283721	**3.610046**
	Standard Newspapers Ltd	2.313577091	1.96	0.77781746	1.524522	0.789055	**2.201315**	2.313577091	1.96	0.77781746	1.524522	3.838099	**46.43713**
	Tourism Promotion Services (Serena)	2.301329452	1.96	0.68589358	1.344351	0.956978	**2.603816**	2.301329452	1.96	0.68589358	1.344351	3.645681	**38.30885**
	Uchumi Supermarkets Ltd	3.833408165	1.96	0.12020815	0.235608	3.5978	**36.51781**	3.833408165	1.96	0.12020815	0.235608	4.069016	**58.49938**
Industrial and Allied	*Athi River Mining Ltd*	1.535809455	1.96	0.29698485	0.58209	0.953719	**2.595344**	1.535809455	1.96	0.29698485	0.58209	2.1179	**8.313658**
	Bamburi Cement Ltd	3.416658076	1.96	0.09899495	0.19403	3.222628	**25.09398**	3.416658076	1.96	0.09899495	0.19403	3.610688	**36.9915**
	British American Tobacco Ltd	3.981069245	1.96	0.36769553	0.720683	3.260386	**26.05959**	3.981069245	1.96	0.36769553	0.720683	4.701752	**110.14**
	B O C Gases Ltd	4.033258083	1.96	0.21213203	0.415779	3.617479	**37.24357**	4.033258083	1.96	0.21213203	0.415779	4.449037	**85.54451**
	Carbacid Investments Ltd	3.867048119	1.96	0.28284271	0.554372	3.312676	**27.45852**	3.867048119	1.96	0.28284271	0.554372	4.42142	**83.21435**
	Crown Berger Ltd	2.323530428	1.96	0.24041631	0.471216	1.852314	**6.374556**	2.323530428	1.96	0.24041631	0.471216	2.794746	**16.35848**
	Dunlop Kenya Ltd	2.117221161	1.96	0.15556349	0.304904	1.812317	**6.12462**	2.117221161	1.96	0.15556349	0.304904	2.422126	**11.26979**
	EA Cables Ltd	2.495883819	1.96	0.4384062	0.859276	1.636608	**5.137711**	2.495883819	1.96	0.4384062	0.859276	3.35516	**28.65019**
	EA Packaging Ltd	2.140828644	1.96	0.60811183	1.191899	0.948929	**2.582943**	2.140828644	1.96	0.60811183	1.191899	3.332728	**28.01466**
	EA Portland Cement Ltd	2.423835207	1.96	0.16970563	0.332623	2.091212	**8.094721**	2.423835207	1.96	0.16970563	0.332623	2.756458	**15.74398**
	Firestone East Africa Ltd	2.62541194	1.96	0.21213203	0.415779	2.209633	**9.112373**	2.62541194	1.96	0.21213203	0.415779	3.041191	**20.93015**
	East Africa Breweries Ltd	4.303354972	1.96	0.12020815	0.235608	4.067747	**58.42518**	4.303354972	1.96	0.12020815	0.235608	4.538963	**93.59369**
	Kenya National Mills Ltd	1.959712851	1.96	0.56568542	1.108743	0.850969	**2.341916**	1.959712851	1.96	0.56568542	1.108743	3.068456	**21.50867**
	Kenya Oil Co Ltd	4.296695401	1.96	0.16263456	0.318764	3.977932	**53.40646**	4.296695401	1.96	0.16263456	0.318764	4.615459	**101.0342**
	Kenya Power & Lighting Ltd	4.198825857	1.96	0.32526912	0.637527	3.561298	**35.20888**	4.198825857	1.96	0.32526912	0.637527	4.836353	**126.009**
	Total Kenya Ltd	3.935352175	1.96	0.30405592	0.59595	3.339403	**28.20227**	3.935352175	1.96	0.30405592	0.59595	4.531302	**92.87939**
	Unga Group Ltd	2.799883667	1.96	0.51618795	1.011728	1.788155	**5.978414**	2.799883667	1.96	0.51618795	1.011728	3.811612	**45.22328**

ESTIMATION OF EXERCISE PRICE RANGES-JULY-DECEMBER

SECTOR	COMPANY	a LN(p0)+(E(R)-V2/2*0.5	b	c V*SQRT(0.5)	d b*c	a-d	e	LN(p0)+(E(R)-V2/2*0.5		V*SQRT(0.5)			
Agricultural	*Brooke Bond Kenya Limited*	4.266894756	1.96	0.19748826	0.387077	3.879818	**48.41539**	4.266894756	1.96	0.19748826	0.387077	4.653972	**105.0012**
	Eaagads Limited	3.118230241	1.96	0.14591493	0.285993	2.832237	**16.98341**	3.118230241	1.96	0.14591493	0.285993	3.404224	**30.09092**
	George Williamson Kenya Ltd	4.311776041	1.96	0.30487027	0.597546	3.71423	**41.027**	4.311776041	1.96	0.30487027	0.597546	4.909322	**135.5475**
	Kakuzi Ltd	3.984206937	1.96	0.20587244	0.40351	3.580697	**35.89855**	3.984206937	1.96	0.20587244	0.40351	4.387717	**80.45652**
	Kapchorua Tea Co Ltd	5.018968627	1.96	0	0	5.018969	**151.2552**	5.018968627	1.96	0	0	5.018969	**151.2552**
	Limuru Tea Co Ltd	6.519280055	1.96	0	0	6.51928	**678.09**	6.519280055	1.96	0	0	6.51928	**678.09**
	Rea Vipingo Ltd	1.149180467	1.96	0.15507414	0.303945	0.845235	**2.328525**	1.149180467	1.96	0.15507414	0.303945	1.453126	**4.276461**
	Sasini Tea & Coffee Ltd	3.435966102	1.96	0.21213203	0.415779	3.020187	**20.49513**	3.435966102	1.96	0.21213203	0.415779	3.851745	**47.07513**
Finance & Investment	*Barclays Bank Ltd*	4.436947296	1.96	0.25455844	0.498935	3.938013	**51.31652**	4.436947296	1.96	0.25455844	0.498935	4.935882	**139.1958**
	City Trust Ltd	3.061707274	1.96	0.13435029	0.263327	2.798381	**16.41804**	3.061707274	1.96	0.13435029	0.263327	3.325034	**27.79994**
	CFC Bank Ltd	2.227382386	1.96	0.28284271	0.554372	1.673011	**5.328185**	2.227382386	1.96	0.28284271	0.554372	2.781754	**16.14732**
	Diamond Trust Bank Kenya Ltd	2.749707274	1.96	0.20506097	0.401919	2.347788	**10.4624**	2.749707274	1.96	0.20506097	0.401919	3.151627	**23.37406**
	Housing Finance Co (K) Ltd	1.415002617	1.96	0.78488853	1.538382	-0.12338	**0.883929**	1.415002617	1.96	0.78488853	1.538382	2.953384	**19.17072**
	ICDC Investments Co Ltd	3.87874767	1.96	0.19091883	0.374201	3.504547	**33.26636**	3.87874767	1.96	0.19091883	0.374201	4.252949	**70.31243**
	Jubilee Insurance Co Ltd	3.121642453	1.96	0.16970563	0.332623	2.789019	**16.26506**	3.121642453	1.96	0.16970563	0.332623	3.454265	**31.63504**
	Kenya Commercial Bank Ltd	3.38830451	1.96	0.24041631	0.471216	2.917089	**18.48738**	3.38830451	1.96	0.24041631	0.471216	3.85952	**47.4426**
	National Bank of Kenya Ltd	1.030908845	1.96	0.36062446	0.706824	0.324085	**1.382765**	1.030908845	1.96	0.36062446	0.706824	1.737733	**5.684441**
	National Industrial Credit Ltd	2.866497438	1.96	0.27577164	0.540512	2.325985	**10.23676**	2.866497438	1.96	0.27577164	0.540512	3.40701	**30.17488**
	Pan Africa Insurance Ltd	2.667707274	1.96	0.27577164	0.540512	2.127195	**8.391295**	2.667707274	1.96	0.27577164	0.540512	3.20822	**24.73501**
	Standard Chartered Bank Ltd	4.026176011	1.96	0.36062446	0.706824	3.319352	**27.64243**	4.026176011	1.96	0.36062446	0.706824	4.733	**113.636**
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for a full year											
	A Baumann & Co Ltd	2.462568592	1.96	0.15556349	0.304904	2.157664	**8.650907**	2.462568592	1.96	0.15556349	0.304904	2.767473	**15.91836**
	CMC Holdings Ltd	2.558153886	1.96	0.19091883	0.374201	2.183953	**8.881345**	2.558153886	1.96	0.19091883	0.374201	2.932355	**18.77178**
	Car & General (K) Ltd	2.141672635	1.96	0.66468037	1.302774	0.838899	**2.313818**	2.141672635	1.96	0.66468037	1.302774	3.444446	**31.32593**
	Express Kenya Ltd	2.917842102	1.96	0.09192388	0.180171	2.737671	**15.45096**	2.917842102	1.96	0.09192388	0.180171	3.098013	**22.15389**
	Kenya Airways Ltd	2.218816542	1.96	0.1767767	0.346482	1.872334	**6.503459**	2.218816542	1.96	0.1767767	0.346482	2.565299	**13.00454**
	Marshalls (EA) Ltd	2.845105096	1.96	0.14142136	0.277186	2.567919	**13.03867**	2.845105096	1.96	0.14142136	0.277186	3.122291	**22.69832**
	Nation Media Group Ltd	4.160263114	1.96	0.12020815	0.235608	3.924655	**50.63561**	4.160263114	1.96	0.12020815	0.235608	4.395871	**81.11526**
	Pearl Drycleaners Ltd	0.698568737	1.96	0.18384776	0.360342	0.338227	**1.402459**	0.698568737	1.96	0.18384776	0.360342	1.05891	**2.883228**
	Standard Newspapers Ltd	1.725788771	1.96	0.77781746	1.524522	0.201267	**1.222951**	1.725788771	1.96	0.77781746	1.524522	3.250311	**25.79836**
	Tourism Promotion Services (Serena)	2.284233829	1.96	0.68589358	1.344351	0.939882	**2.55968**	2.284233829	1.96	0.68589358	1.344351	3.628585	**37.6595**
	Uchumi Supermarkets Ltd	3.893144195	1.96	0.12020815	0.235608	3.657536	**38.76571**	3.893144195	1.96	0.12020815	0.235608	4.128752	**62.10038**
Industrial and Allied	*Athi River Mining Ltd*	1.326027233	1.96	0.29698485	0.58209	0.743937	**2.104203**	1.326027233	1.96	0.29698485	0.58209	1.908118	**6.740388**
	Bamburi Cement Ltd	3.535979574	1.96	0.09899495	0.19403	3.341949	**28.27419**	3.535979574	1.96	0.09899495	0.19403	3.73001	**41.67951**
	British American Tobacco Ltd	4.060451268	1.96	0.36769553	0.720683	3.339768	**28.21258**	4.060451268	1.96	0.36769553	0.720683	4.781134	**119.2396**
	B O C Gases Ltd	3.727952654	1.96	0.21213203	0.415779	3.312174	**27.44472**	3.727952654	1.96	0.21213203	0.415779	4.143731	**63.0376**
	Carbacid Investments Ltd	3.752023005	1.96	0.28284271	0.554372	3.197651	**24.47498**	3.752023005	1.96	0.28284271	0.554372	4.306395	**74.17259**
	Crown Berger Ltd	2.446828644	1.96	0.24041631	0.471216	1.975613	**7.211036**	2.446828644	1.96	0.24041631	0.471216	2.918045	**18.50507**
	Dunlop Kenya Ltd	1.847803021	1.96	0.15556349	0.304904	1.542899	**4.678131**	1.847803021	1.96	0.15556349	0.304904	2.152707	**8.608133**
	EA Cables Ltd	2.013341542	1.96	0.4384062	0.859276	1.154065	**3.171058**	2.013341542	1.96	0.4384062	0.859276	2.872618	**17.68325**
	EA Packaging Ltd	2.19531683	1.96	0.60811183	1.191899	1.003418	**2.727588**	2.19531683	1.96	0.60811183	1.191899	3.387216	**29.58348**
	EA Portland Cement Ltd	2.523296473	1.96	0.16970563	0.332623	2.190673	**8.941232**	2.523296473	1.96	0.16970563	0.332623	2.85592	**17.39042**
	Firestone East Africa Ltd	2.438595788	1.96	0.21213203	0.415779	2.022817	**7.55959**	2.438595788	1.96	0.21213203	0.415779	2.854375	**17.36357**
	East Africa Breweries Ltd	4.294825143	1.96	0.12020815	0.235608	4.059217	**57.92894**	4.294825143	1.96	0.12020815	0.235608	4.530433	**92.79875**
	Kenya National Mills Ltd	2.061375257	1.96	0.56568542	1.108743	0.952632	**2.592524**	2.061375257	1.96	0.56568542	1.108743	3.170119	**23.81031**
	Kenya Oil Co Ltd	4.488494247	1.96	0.56568542	1.108743	3.379751	**29.36345**	4.488494247	1.96	0.56568542	1.108743	5.597238	**269.6804**
	Kenya Power & Lighting Ltd	3.618681808	1.96	0.32526912	0.637527	2.981154	**19.71056**	3.618681808	1.96	0.32526912	0.637527	4.256209	**70.54207**
	Total Kenya Ltd	3.990600633	1.96	0.30405592	0.59595	3.394651	**29.80425**	3.990600633	1.96	0.30405592	0.59595	4.58655	**98.15523**
	Unga Group Ltd	2.406142509	1.96	0.51618795	1.011728	1.394414	**4.032611**	2.406142509	1.96	0.51618795	1.011728	3.417871	**30.5044**

APPENDIX 6 – SIMULATION OF OPTION VALUES USING BOPSCOL

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JANUARY TO JUNE 1997

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.97*	*Value of European call option*	*Value of European put option*
Brooke Bond	149	107	22.49	14	0.5	53.38	1	-21.5	0	0	0.478	0	0	-0.0001	0	0	0	124	-36.38	-17
		117				44.4444	0.9999	-23.5179	0	0.0006	0.5227	0.0005	-0.0001	-0.0033	0	0.0006	-0.0001	124	-37.4444	-7.0005
		127				35.519	0.9974	-25.553	0.0005	0.0084	0.5655	0.0116	-0.0026	-0.0286	0.0005	0.0084	-0.002	124	-38.519	**2.9884**
		118				43.551	0.9998	-23.7199	0.0001	0.0008	0.5271	0.0008	-0.0002	-0.0043	0.0001	0.0008	-0.0002	124	-37.551	-6.0008
		119				42.6576	0.9997	-23.9222	0.0001	0.0011	0.5315	0.001	-0.0003	-0.0056	0.0001	0.0011	-0.0002	124	-37.6576	-5.001
		120				41.7644	0.9996	-24.1248	0.0001	0.0014	0.5359	0.0015	-0.0004	-0.0072	0.0001	0.0014	-0.0003	124	-37.7644	-4.0015
		121				40.8713	0.9995	-24.3277	0.0001	0.0019	0.5403	0.002	-0.0005	-0.0091	0.0001	0.0019	-0.0004	124	-37.8713	-3.002
		122				39.9784	0.9993	-24.5309	0.0002	0.0025	0.5446	0.0028	-0.0007	-0.0114	0.0002	0.0025	-0.0005	124	-37.9784	-2.0028
		123				39.0858	0.9991	-24.7346	0.0002	0.0032	0.5489	0.0037	-0.0009	-0.014	0.0002	0.0032	-0.0007	124	-38.0858	-1.0037
		124				38.1934	0.9988	-24.9387	0.0003	0.0041	0.5532	0.005	-0.0012	-0.0171	0.0003	0.0041	-0.0009	124	-38.1934	-0.005
		125				37.3014	0.9985	-25.1431	0.0003	0.0053	0.5573	0.0067	-0.0015	-0.0206	0.0003	0.0053	-0.0012	124	-38.3014	**0.9933**
Eaagads Ltd	27.25	17	22.49	51	0.5	12.2187	0.9641	-3.9357	0.008	0.0152	0.0703	0.1606	-0.0359	-0.519	0.008	0.0152	-0.0057	26	-3.2187	-9.1606
		27				5.4415	0.6977	-6.4806	0.0355	0.0672	0.0678	2.3198	-0.3023	-1.0541	0.0355	0.0672	-0.0528	26	-6.4415	-1.3198
		37				2.0053	0.3609	-5.4405	0.0381	0.0722	0.0391	7.82	-0.6391	1.9957	0.0381	0.0722	-0.1262	26	-13.0053	**3.18**
		28				4.9568	0.6616	-6.5341	0.0372	0.0705	0.0654	2.7288	-0.3384	-0.9066	0.0372	0.0705	-0.0598	26	-6.9568	-0.7288
		29				4.5074	0.6253	-6.544	0.0386	0.073	0.0627	3.173	-0.3747	-0.7156	0.0386	0.073	-0.0669	26	-7.5074	-0.173
		30				4.092	0.5892	-6.5127	0.0396	0.0749	0.0598	3.6513	-0.4108	-0.4833	0.0396	0.0749	-0.0742	26	-8.092	**0.3487**
George Williamson	73.5	28	22.49	68	0.5	48.5656	0.9935	-6.1485	0.0005	0.0095	0.1223	0.0875	-0.0065	-0.521	0.0005	0.0095	-0.0028	70	-6.5656	-42.0875
		38				40.0806	0.9676	-9.5445	0.0021	0.0377	0.1552	0.539	-0.0324	-1.9072	0.0021	0.0377	-0.0146	70	-8.0806	-32.539
		48				32.3522	0.9132	-13.4072	0.0045	0.0822	0.1738	1.747	-0.0868	-3.7601	0.0045	0.0822	-0.0407	70	-10.3522	-23.747
		58				25.6562	0.8332	-16.8376	0.0071	0.1299	0.1779	3.9874	-0.1668	-5.1808	0.0071	0.1299	-0.0812	70	-13.6562	-15.9874
		68				20.084	0.7376	-19.1933	0.0092	0.1694	0.1707	7.3516	-0.2624	-5.5267	0.0092	0.1694	-0.1332	70	-18.084	-9.3516
		78				15.5828	0.6371	-20.2849	0.0106	0.195	0.1562	11.7869	-0.3629	-4.6084	0.0106	0.195	-0.1923	70	-23.5828	-3.7869
		88				12.0223	0.5398	-20.2475	0.0112	0.2063	0.1382	17.1628	-0.4602	-2.5612	0.0112	0.2063	-0.255	70	-30.0223	**0.8372**
		79				15.187	0.6271	-20.3279	0.0107	0.1967	0.1545	12.2847	-0.3729	-4.4505	0.0107	0.1967	-0.1985	70	-24.187	-3.2847
		80				14.8004	0.6172	-20.3598	0.0108	0.1983	0.1528	12.7917	-0.3828	-4.2814	0.0108	0.1983	-0.2047	70	-24.8004	-2.7917
		81				14.4229	0.6073	-20.3808	0.0109	0.1998	0.1511	13.3079	-0.3927	-4.1015	0.0109	0.1998	-0.2109	70	-25.4229	-2.3079
		82				14.0544	0.5974	-20.3913	0.011	0.2011	0.1493	13.833	-0.4026	-3.9109	0.011	0.2011	-0.2171	70	-26.0544	-1.833
		83				13.6946	0.5876	-20.3914	0.011	0.2023	0.1475	14.3669	-0.4124	-3.71	0.011	0.2023	-0.2234	70	-26.6946	-1.3669
		84				13.3435	0.5779	-20.3814	0.0111	0.2034	0.1457	14.9095	-0.4221	-3.4991	0.0111	0.2034	-0.2297	70	-27.3435	-0.9095
		85				13.0009	0.5683	-20.3618	0.0111	0.2043	0.1438	15.4605	-0.4317	-3.2785	0.0111	0.2043	-0.236	70	-28.0009	-0.4605
		86				12.6666	0.5587	-20.3327	0.0112	0.2051	0.142	16.0198	-0.4413	-3.0484	0.0112	0.2051	-0.2423	70	-28.6666	-0.0198
		87				12.3405	0.5492	-20.2945	0.0112	0.2058	0.1401	16.5873	-0.4508	-2.8092	0.0112	0.2058	-0.2486	70	-29.3405	**0.4127**
Kakuzi Ltd	98	45	22.49	51	0.5	57.8352	0.996	-9.3651	0.0003	0.0082	0.1989	0.0491	-0.004	-0.321	0.0003	0.0082	-0.0022	102	-0.8352	-57.0491
		55				49.1134	0.9819	-12.1694	0.0013	0.0309	0.2355	0.2637	-0.0181	-1.1155	0.0013	0.0309	-0.0102	102	-2.1134	-47.2637
		65				40.7951	0.9485	-15.4614	0.003	0.0732	0.2608	0.8818	-0.0515	-2.3977	0.003	0.0732	-0.0296	102	-3.7951	-37.8818
		75				33.1507	0.8914	-18.7762	0.0053	0.1291	0.271	2.1738	-0.1086	-3.7027	0.0053	0.1291	-0.0641	102	-6.1507	-29.1738
		85				26.3973	0.8124	-21.4843	0.0076	0.1866	0.2661	4.3569	-0.1876	-4.4009	0.0076	0.1866	-0.1137	102	-9.3973	-21.3569
		95				20.6474	0.7185	-23.1197	0.0095	0.2339	0.2488	7.5434	-0.2815	-4.0266	0.0095	0.2339	-0.1757	102	-13.6474	-14.5434
		105				15.9071	0.6182	-23.5236	0.0108	0.2642	0.2234	11.7395	-0.3818	-2.4207	0.0108	0.2642	-0.2458	102	-18.9071	-8.7395
		115				12.103	0.5194	-22.8074	0.0113	0.2761	0.194	16.8718	-0.4806	0.3053	0.0113	0.2761	-0.3199	102	-25.103	-3.8718
		125				9.1164	0.4275	-21.2385	0.0111	0.2719	0.1639	22.8216	-0.5725	3.884	0.0111	0.2719	-0.3946	102	-32.1164	**0.1784**
		124				9.3821	0.4363	-21.4248	0.0111	0.2729	0.1669	22.1937	-0.5637	3.4968	0.0111	0.2729	-0.3872	102	-31.3821	**-0.1937**

Kapchorua Tea Co	70	**70**	22.49	0	0.5	7.4451	1	-14.0686	0	0	0.3128	0	0	0	0	0	0	70	-7.4451	**0**
		80				0	0	0	0	0	0	1.4914	-1	16.0784	0	0	-0.3575	70	-10	**8.5086**
Limuru Tea Co	1300	677	22.49	31	0.5	695.0161	0.9998	%-136.189	0	0.0056	3.0239	0.0118	-0.0002	-0.1256	0	0.0056	-0.0011	1000	-372.0161	-323.0118
		687				686.0834	0.9998	%-138.231	0	0.0072	3.0682	0.0155	-0.0002	-0.1584	0	0.0072	-0.0014	1000	-373.0834	-313.0155
		697				677.1516	0.9997	%-140.281	0	0.009	3.1125	0.0201	-0.0003	-0.198	0	0.009	-0.0018	1000	-374.1516	-303.0201
		707				668.221	0.9997	%-142.338	0	0.0111	3.1567	0.0259	-0.0003	-0.2457	0	0.0113	-0.0023	1000	-375.221	-292.9997
		717				659.2919	0.9996	%-144.405	0	0.014	3.2008	0.0332	-0.0004	-0.3027	0	0.014	-0.0029	1000	-376.2919	-283.0332
		727				650.3646	0.9995	%-146.482	0	0.0172	3.2447	0.0423	-0.0005	-0.3701	0	0.0172	-0.0037	1000	-377.3646	-273.0423
		737				641.4393	0.9993	%-148.571	0	0.0211	3.2885	0.0535	-0.0007	-0.4495	0	0.0211	-0.0046	1000	-378.4393	-263.0535
		747				632.5165	0.9992	%-150.674	0	0.0257	3.3321	0.0672	-0.0008	-0.5422	0	0.0257	-0.0056	1000	-379.5165	-253.0672
		757				623.5968	0.999	%-152.791	0	0.031	3.3755	0.0838	-0.001	-0.6497	0	0.031	-0.0069	1000	-380.5968	-243.0838
		767				614.6805	0.9988	%-154.925	0	0.0373	3.4186	0.104	-0.0012	-0.7736	0	0.0373	-0.0085	1000	-381.6805	-233.104
		777				605.7684	0.9985	%-157.077	0	0.0445	3.4615	0.1282	-0.0015	-0.9155	0	0.0445	-0.0103	1000	-382.7684	-223.1282
		787				596.861	0.9982	%-159.248	0	0.0528	3.504	0.1573	-0.0018	-1.0771	0	0.0528	-0.0125	1000	-383.861	-213.1573
		797				587.9591	0.9978	%-161.441	0	0.0624	3.5462	0.1918	-0.0022	-1.2598	0	0.0624	-0.015	1000	-384.9591	-203.1918
		807				579.0635	0.9974	%-163.656	0	0.0732	3.588	0.2326	-0.0026	-1.4653	0	0.0732	-0.0179	1000	-386.0635	-193.2326
		817				570.1752	0.9969	%-165.895	0	0.0856	3.6292	0.2808	-0.0031	-1.6951	0	0.0856	-0.0213	1000	-387.1752	-183.2808
		827				561.2952	0.9964	%-168.161	0	0.0995	3.67	0.3372	-0.0036	-1.9505	0	0.0995	-0.0252	1000	-388.2952	-173.3372
		837				552.4246	0.9957	%-170.453	0	0.1151	3.7102	0.403	-0.0043	-2.2328	0	0.1151	-0.0297	1000	-389.4246	-163.403
		847				543.5646	0.995	%-172.773	0.0001	0.1325	3.7498	0.4794	-0.005	-2.5432	0.0001	0.1325	-0.0348	1000	-390.5646	-153.4794
		857				534.7165	0.9942	%-175.122	0.0001	0.1519	3.7887	0.5677	-0.0058	-2.8825	0.0001	0.1519	-0.0406	1000	-391.7165	-143.5677
		867				525.8818	0.9933	%-177.501	0.0001	0.1734	3.8267	0.6694	-0.0067	-3.2514	0.0001	0.1734	-0.0472	1000	-392.8818	-133.6694
		877				517.0619	0.9922	%-179.910	0.0001	0.197	3.864	0.786	-0.0078	-3.6506	0.0001	0.197	-0.0546	1000	-394.0619	-123.786
		887				508.2586	0.991	%-182.349	0.0001	0.223	3.9004	0.9191	-0.009	-4.08	0.0001	0.223	-0.063	1000	-395.2586	-113.9191
		897				499.4735	0.9897	%-184.818	0.0001	0.2513	3.9357	1.0705	-0.0103	-4.5397	0.0001	0.2513	-0.0723	1000	-396.4735	-104.0705
		907				490.7087	0.9882	%-187.318	0.0001	0.2822	3.97	1.242	-0.0118	-5.0291	0.0001	0.2822	-0.0827	1000	-397.7087	-94.242
		917				481.966	0.9866	%-189.846	0.0001	0.3156	4.0032	1.4358	-0.0134	-5.5475	0.0001	0.3156	-0.0942	1000	-398.966	-84.4358
		927				473.2475	0.9848	%-192.402	0.0001	0.3518	4.0351	1.6537	-0.0152	-6.0936	0.0001	0.3518	-0.107	1000	-400.2475	-74.6537
		937				464.5554	0.9828	%-194.984	0.0001	0.3906	4.0657	1.898	-0.0172	-6.6659	0.0001	0.3906	-0.121	1000	-401.5554	-64.898
		947				455.892	0.9807	%-197.590	0.0002	0.4323	4.0949	2.171	-0.0193	-7.2623	0.0002	0.4323	-0.1365	1000	-402.892	-55.171
		957				447.2598	0.9783	%-200.218	0.0002	0.4767	4.1227	2.4752	-0.0217	-7.8805	0.0002	0.4767	-0.1534	1000	-404.2598	-45.4752
		967				438.6611	0.9757	%-202.865	0.0002	0.5241	4.1489	2.813	-0.0243	-8.5177	0.0002	0.5241	-0.1718	1000	-405.6611	-35.813
		977				430.0986	0.9729	%-205.528	0.0002	0.5743	4.1735	3.1869	-0.0271	-9.1706	0.0002	0.5743	-0.1919	1000	-407.0986	-26.1869
		987				421.5749	0.9699	%-208.202	0.0002	0.6274	4.1964	3.5996	-0.0301	-9.8354	0.0002	0.6274	-0.2137	1000	-408.5749	-16.5996
		997				413.0929	0.9666	%-210.885	0.0003	0.6833	4.2175	4.054	-0.0334	-10.5082	0.0003	0.6833	-0.2373	1000	-410.0929	-7.054
		1007				404.655	0.9631	%-213.571	0.0003	0.742	4.2368	4.5525	-0.0369	-11.1844	0.0003	0.742	-0.2627	1000	-411.655	**2.4475**
		998				412.2469	0.9663	%-211.153	0.0003	0.689	4.2195	4.1017	-0.0337	-10.5758	0.0003	0.689	-0.2397	1000	-410.2469	-6.1017
		999				411.4016	0.9659	%-211.422	0.0003	0.6948	4.2215	4.15	-0.0341	-10.6434	0.0003	0.6948	-0.2422	1000	-410.4016	-5.15
		1000				410.5567	0.9656	%-211.691	0.0003	0.7006	4.2235	4.1987	-0.0344	-10.711	0.0003	0.7006	-0.2447	1000	-410.5567	-4.1987
		1001				409.7122	0.9652	%-211.959	0.0003	0.7064	4.2255	4.2478	-0.0348	-10.7786	0.0003	0.7064	-0.2472	1000	-410.7122	-3.2478
		1002				408.8682	0.9649	%-212.228	0.0003	0.7123	4.2274	4.2975	-0.0351	-10.8462	0.0003	0.7123	-0.2498	1000	-410.8682	-2.2975
		1003				408.0246	0.9645	%-212.496	0.0003	0.7182	4.2293	4.3476	-0.0355	-10.9139	0.0003	0.7182	-0.2523	1000	-411.0246	-1.3476
		1004				407.1815	0.9642	%-212.765	0.0003	0.7241	4.2312	4.3981	-0.0358	-10.9815	0.0003	0.7241	-0.2549	1000	-411.1815	-0.3981
		1005				406.3389	0.9638	%-213.034	0.0003	0.73	4.2331	4.4491	-0.0362	-11.0492	0.0003	0.73	-0.2575	1000	-411.3389	**0.5509**
Rea Vipingo Ltd	11	**7**	22.49	27	0.5	4.7452	0.9989	-1.4118	0.0018	0.0003	0.0312	0.0007	-0.0011	-0.005	0.0018	0.0003	-0.0001	9.3	-2.4452	-2.3007
		12				0.9715	0.5904	-2.0584	0.1851	0.0302	0.0276	0.6952	-0.4096	0.3533	0.1851	0.0302	-0.026	9.3	-3.6715	**2.0048**
		8				3.8579	0.9907	-1.6359	0.0119	0.002	0.0352	0.007	-0.0093	-0.028	0.0119	0.002	-0.0005	9.3	-2.5579	-1.307
		9				2.995	0.9587	-1.8839	0.0421	0.0069	0.0378	0.0378	-0.0413	-0.0751	0.0421	0.0069	-0.0025	9.3	-2.695	-0.3378
		10				2.1961	0.8817	-2.1032	0.0943	0.0154	0.0375	0.1326	-0.1183	-0.0934	0.0943	0.0154	-0.0072	9.3	-2.8961	**0.5674**
Sasini Tea & Coffe	60	**47**	22.49	38	0.5	18.5745	0.9281	-10.5562	0.0085	0.0582	0.1856	0.5757	-0.0719	-1.1102	0.0085	0.0582	-0.0245	85	**19.4255**	-38.5757

57	11.5179	0.7715	-12.6977	0.0188	0.1284	0.1739	2.4555	-0.2285	-1.2418	0.0188	0.1284	-0.0808	85	16.4821	-30.4555
67	6.4689	0.5565	-12.422	0.0245	0.1676	0.1346	6.3429	-0.4435	1.0436	0.0245	0.1676	-0.1648	85	11.5311	-24.3429
77	3.347	0.3536	-10.0129	0.0231	0.1577	0.0894	12.1575	-0.6464	5.4626	0.0231	0.1577	-0.2547	85	4.653	-20.1575
87	1.6265	0.2033	-6.9349	0.0175	0.1199	0.0529	19.3734	-0.7967	10.5503	0.0175	0.1199	-0.3359	85	-3.6265	-17.3734
97	0.7553	0.1084	-4.2938	0.0115	0.079	0.0288	27.4386	-0.8916	15.2012	0.0115	0.079	-0.4047	85	-12.7553	-15.4386
107	0.3398	0.0548	-2.4511	0.0069	0.0471	0.0147	35.9595	-0.9452	19.0538	0.0069	0.0471	-0.4634	85	-22.3398	-13.9595
117	0.1497	0.0266	-1.3198	0.0038	0.0262	0.0072	44.7058	-0.9734	22.1949	0.0038	0.0262	-0.5155	85	-32.1497	-12.7058
127	0.0651	0.0126	-0.6816	0.002	0.0138	0.0035	53.5576	-0.9874	24.8429	0.002	0.0138	-0.564	85	-42.0651	-11.5576
82	2.3489	0.271	-8.4699	0.0205	0.1405	0.0696	15.6275	-0.729	8.0105	0.0205	0.1405	-0.2968	85	**0.6511**	-18.6275
83	2.1846	0.2563	-8.1578	0.02	0.1366	0.066	16.3569	-0.7437	8.5235	0.02	0.1366	-0.3049	85	-0.1846	-18.3569

SIMULATION OF OPTION VALUES USING BOPSCOL

C0MMERCIAL AND SERVICES SECTOR-JANUARY TO JUNE 1997

Company	Stock price	Exercise price	Rf	V	t	Call price	Call delta	Call theta	Call gamma	Call vega	Call rho	Put price	Put delta	Put theta	Put gamma	Put vega	Put rho	Stock price at expiratio 30.6.97	Value of European call option	Value of European put option
A Baumann & Co	33	11	22.49	57	0.5	23.1726	0.9993	-2.2363	0.0002	0.0005	0.049	0.0027	-0.0007	-0.0255	0.0002	0.0005	-0.0001	26	-8.1726	-15.0027
		21				14.5957	0.9454	-5.2048	0.0083	0.0258	0.083	0.3622	-0.0546	-0.9842	0.0083	0.0258	-0.0108	26	-9.5957	-5.3622
		31				7.9383	0.7375	-8.0237	0.0245	0.0761	0.082	2.6412	-0.2625	-1.7933	0.0245	0.0761	-0.0565	26	-12.9383	**2.3588**
		22				13.8157	0.9314	-5.5633	0.0099	0.0308	0.0846	0.4758	-0.0686	-1.1418	0.0099	0.0308	-0.0137	26	-9.8157	-4.4758
		23				13.058	0.9156	-5.917	0.0116	0.0361	0.0858	0.6118	-0.0844	-1.2945	0.0116	0.0361	-0.017	26	-10.058	-3.6118
		24				12.3242	0.8981	-6.2605	0.0134	0.0415	0.0866	0.7716	-0.1019	-1.437	0.0134	0.0415	-0.0207	26	-10.3242	-2.7716
		25				11.6157	0.8789	-6.5886	0.0151	0.047	0.0869	0.9568	-0.1211	-1.5641	0.0151	0.047	-0.0248	26	-10.6157	-1.9568
		26				10.9336	0.8581	-6.8969	0.0169	0.0524	0.0869	1.1683	-0.1419	-1.6714	0.0169	0.0524	-0.0292	26	-10.9336	-1.1683
		27				10.2786	0.8361	-7.1812	0.0186	0.0577	0.0866	1.407	-0.1639	-1.7548	0.0186	0.0577	-0.0341	26	-11.2786	-0.407
		28				9.6514	0.8128	-7.4383	0.0202	0.0627	0.0859	1.6734	-0.1872	-1.8109	0.0202	0.0627	-0.0393	26	-11.6514	**0.3266**
CMC Holdings Ltd	70	**43**	22.49	38	0.5	31.6351	0.991	-8.9432	0.0013	0.012	0.1887	0.0617	-0.009	-0.3011	0.0013	0.012	-0.0035	82.5	**7.8649**	-39.5617
		53				23.137	0.9439	-11.7819	0.006	0.0559	0.2147	0.5001	-0.0561	-1.1299	0.006	0.0559	-0.0221	82.5	**6.363**	-30.0001
		63				15.68	0.8277	-14.3049	0.0136	0.1264	0.2113	1.9794	-0.1723	-1.6432	0.0136	0.1264	-0.0702	82.5	**3.82**	-21.4794
		73				9.8543	0.6542	-15.0188	0.0196	0.1825	0.1797	5.0902	-0.3458	-0.3472	0.0196	0.1825	-0.1465	82.5	-0.3543	-14.5902
		83				5.795	0.4677	-13.5384	0.0211	0.1968	0.1347	9.9673	-0.5323	3.143	0.0211	0.1968	-0.2362	82.5	-6.295	-9.4673
		93				3.2277	0.307	-10.7137	0.0187	0.1739	0.0913	16.336	-0.693	7.9774	0.0187	0.1739	-0.3242	82.5	-13.7277	-5.8364
		103				1.7232	0.1882	-7.6494	0.0143	0.1335	0.0573	23.768	-0.8118	13.0515	0.0143	0.1335	-0.403	82.5	-22.2232	-3.2683
		113				0.8911	0.1095	-5.0471	0.01	0.0927	0.0339	31.873	-0.8905	17.6637	0.01	0.0927	-0.4711	82.5	-31.3911	-1.3726
		123				0.4502	0.0612	-3.1367	0.0064	0.0599	0.0192	40.368	-0.9388	21.5839	0.0064	0.0599	-0.5304	82.5	-40.9502	**0.1319**
		72				10.3557	0.6729	-15.0521	0.0192	0.1786	0.1837	4.6979	-0.3271	-0.5815	0.0192	0.1786	-0.138	82.5	**0.1443**	-15.1979
		122				0.4824	0.0649	-3.2968	0.0067	0.0627	0.0203	39.507	-0.9351	21.2227	0.0067	0.0627	-0.5248	82.5	-39.9824	-0.0067
Car & General	20	13	22.49	23	0.5	8.3829	0.9997	-2.615	0.0004	0.0002	0.0581	0.0003	-0.0003	-0.0023	0.0004	0.0002	0	17	-4.3829	-4.0003
		23				1.0557	0.4655	-3.1491	0.1222	0.0562	0.0413	1.6095	-0.5345	1.4734	0.1222	0.0562	-0.0615	17	-7.0557	**4.3905**
		14				7.4905	0.9985	-2.8226	0.0015	0.0007	0.0624	0.0015	-0.0015	-0.0088	0.0015	0.0007	-0.0002	17	-4.4905	-3.0015
		15				6.6014	0.9945	-3.0399	0.0049	0.0022	0.0664	0.006	-0.0055	-0.0252	0.0049	0.0022	-0.0006	17	-4.6014	-2.006
		16				5.7213	0.984	-3.2695	0.0123	0.0057	0.0698	0.0196	-0.016	-0.0538	0.0123	0.0057	-0.0017	17	-4.7213	-1.0196
		17				4.861	0.9618	-3.5029	0.0255	0.0117	0.0719	0.0529	-0.0382	-0.0863	0.0255	0.0117	-0.0041	17	-4.861	-0.0529
		18				4.0363	0.9223	-3.7137	0.0447	0.0206	0.072	0.1218	-0.0777	-0.0961	0.0447	0.0206	-0.0084	17	-5.0363	**0.8782**
Express Kenya Ltd	76	53	22.49	19	0.5	28.6374	0.9998	-10.6555	0.0001	0.0003	0.2367	0.0004	-0.0002	-0.0036	0.0001	0.0003	-0.0001	71	-10.6374	-18.0004
		63				19.7395	0.9893	-12.7588	0.0028	0.0152	0.2772	0.039	-0.0107	-0.0971	0.0028	0.0152	-0.0043	71	-11.7395	-8.039
		73				11.3666	0.8857	-14.5557	0.0189	0.1039	0.2797	0.6024	-0.1143	0.1159	0.0189	0.1039	-0.0464	71	-13.3666	**1.3976**
		64				18.8616	0.9855	-12.9782	0.0036	0.0198	0.2802	0.0547	-0.0145	-0.1155	0.0036	0.0198	-0.0058	71	-11.8616	-7.0547
		65				17.9888	0.9807	-13.1966	0.0046	0.0253	0.2827	0.0755	-0.0193	-0.1329	0.0046	0.0253	-0.0077	71	-11.9888	-6.0755
		66				17.1223	0.9747	-13.412	0.0058	0.0318	0.2848	0.1026	-0.0253	-0.1473	0.0058	0.0318	-0.0101	71	-12.1223	-5.1026
		67				16.2634	0.9673	-13.6219	0.0072	0.0393	0.2863	0.1375	-0.0327	-0.1563	0.0072	0.0393	-0.0131	71	-12.2634	-4.1375
		68				15.4138	0.9584	-13.8231	0.0087	0.0478	0.2871	0.1815	-0.0416	-0.1565	0.0087	0.0478	-0.0167	71	-12.4138	-3.1815
		69				14.5751	0.9477	-14.012	0.0105	0.0574	0.2873	0.2364	-0.0523	-0.1444	0.0105	0.0574	-0.021	71	-12.5751	-2.2364
		70				13.7491	0.9353	-14.1843	0.0124	0.0679	0.2867	0.3041	-0.0647	-0.1157	0.0124	0.0679	-0.0261	71	-12.7491	-1.3041
		71				12.9377	0.9208	-14.3356	0.0144	0.0793	0.2852	0.3863	-0.0792	-0.066	0.0144	0.0793	-0.032	71	-12.9377	-0.3863
		72				12.1429	0.9043	-14.461	0.0166	0.0913	0.2829	0.4851	-0.0957	0.0096	0.0166	0.0913	-0.0388	71	-13.1429	**0.5149**

Kenya Airways	8.5	7	22.49	13	0.5	2.2446	0.9996	-1.4072	0.0017	0.0001	0.0313	0.0001	-0.0004	-0.0003	0.0017	0.0001	0	8.2	-1.0446	-1.2001
		8				1.3591	0.9731	-1.6031	0.0795	0.0037	0.0346	0.0083	-0.0269	0.0047	0.0795	0.0037	-0.0012	8.2	-1.1591	-0.2083
		9				0.585	0.7413	-1.5384	0.414	0.0194	0.0286	0.1278	-0.2587	0.2705	0.414	0.0194	-0.0116	8.2	-1.385	**0.6722**
Lonhro Motors	128	12	22.49	120	0.5	117.2909	0.9996	-2.557	0	0.0013	0.0533	0.0146	-0.0004	-0.1453	0	0.0013	-0.0003	82.5	-46.7909	-70.5146
		22				108.529	0.9958	-5.6132	0.0001	0.0113	0.0946	0.1892	-0.0042	-1.1917	0.0001	0.0113	-0.0037	82.5	-48.029	-60.6892
		32				100.1483	0.9858	-9.7876	0.0003	0.0328	0.1301	0.7448	-0.0142	-3.3562	0.0003	0.0328	-0.0128	82.5	-49.6483	-51.2448
		42				92.294	0.9693	-14.6857	0.0006	0.0628	0.1589	1.8269	-0.0307	-6.2445	0.0006	0.0628	-0.0288	82.5	-51.794	-42.3269
		52				85.029	0.9472	-19.8408	0.001	0.0975	0.1811	3.4983	-0.0528	-9.3898	0.001	0.0975	-0.0513	82.5	-54.529	-33.9983
		62				78.3623	0.9209	-24.8969	0.0014	0.1334	0.1976	5.7681	-0.0791	-12.4361	0.0014	0.1334	-0.0795	82.5	-57.8623	-26.2681
		72				72.273	0.8916	-29.6258	0.0017	0.1685	0.2092	8.6152	-0.1084	-15.1552	0.0017	0.1685	-0.1125	82.5	-61.773	-19.1152
		82				66.7247	0.8603	-33.8999	0.002	0.2012	0.217	12.003	-0.1397	-17.4196	0.002	0.2012	-0.1494	82.5	-66.2247	-12.5034
		92				61.675	0.8279	-37.6619	0.0023	0.2308	0.2215	15.89	-0.1721	-19.1717	0.0023	0.2308	-0.1896	82.5	-71.175	-6.3901
		102				57.08	0.7951	-40.8995	0.0026	0.2571	0.2235	20.232	-0.2049	-20.3996	0.0026	0.2571	-0.2323	82.5	-76.58	-0.7315
		112				52.897	0.7624	-43.6285	0.0028	0.2798	0.2235	24.985	-0.2376	-21.1187	0.0028	0.2798	-0.277	82.5	-82.397	**4.5151**
		103				56.6438	0.7919	-41.1949	0.0026	0.2595	0.2236	20.689	-0.2081	-20.4939	0.0026	0.2595	-0.2367	82.5	-77.1438	-0.189
		104				56.2117	0.7886	-41.4852	0.0027	0.2619	0.2236	21.151	-0.2114	-20.5832	0.0027	0.2619	-0.2411	82.5	-77.7117	**0.3495**
Marshalls EA Ltd	47.5	**6**	22.49	118	0.5	42.1554	0.9988	-1.3487	0.0001	0.0014	0.0264	0.0173	-0.0012	-0.1428	0.0001	0.0014	-0.0004	77	**28.8446**	-71.0173
		16				33.8892	0.9683	-5.5463	0.0018	0.0239	0.0605	0.6875	-0.0317	-2.3307	0.0018	0.0239	-0.011	77	**27.1108**	-61.6875
		26				27.122	0.8987	-10.522	0.0045	0.0595	0.0778	2.8567	-0.1013	-5.2966	0.0045	0.0595	-0.0383	77	**23.878**	-53.8567
		36				21.8314	0.8117	-14.4569	0.0068	0.0906	0.0836	6.5025	-0.1883	-7.2217	0.0068	0.0906	-0.0772	77	**19.1686**	-47.5025
		46				17.7287	0.7225	-17.0139	0.0085	0.1126	0.083	11.336	-0.2775	-7.7688	0.0085	0.1126	-0.1226	77	**13.2713**	-42.3363
		56				14.533	0.6386	-18.4009	0.0095	0.1258	0.079	17.077	-0.3614	-7.146	0.0095	0.1258	-0.1712	77	**6.467**	-38.077
		66				12.0221	0.5627	-18.923	0.0099	0.1323	0.0735	23.502	-0.4373	-5.6583	0.0099	0.1323	-0.2214	77	-1.0221	-34.5024
		65				12.2475	0.5699	-18.9016	0.0099	0.1319	0.0741	22.834	-0.4301	-5.8379	0.0099	0.1319	-0.2163	77	-0.2475	-34.8342
		64				12.4782	0.5772	-18.8741	0.0099	0.1315	0.0747	22.171	-0.4228	-6.0113	0.0099	0.1315	-0.2113	77	**0.5218**	-35.1713
Nation Media Group	113	53	22.49	56	0.5	65.7779	0.9917	-11.4252	0.0005	0.0182	0.2314	0.141	-0.0083	-0.7732	0.0005	0.0182	-0.0054	116	-2.7779	-63.141
		63				57.1922	0.9749	-14.5402	0.0013	0.0469	0.2648	0.4917	-0.0251	-1.8785	0.0013	0.0469	-0.0167	116	-4.1922	-53.4917
		73				49.0282	0.9436	-18.0331	0.0025	0.0907	0.288	1.2641	-0.0564	-3.3615	0.0025	0.0907	-0.0382	116	-6.0282	-44.2641
		83				41.4681	0.8964	-21.513	0.004	0.1439	0.2991	2.6404	-0.1036	-4.8317	0.004	0.1439	-0.0717	116	-8.4681	-35.6404
		93				34.6486	0.8349	-24.5364	0.0055	0.1984	0.2985	4.7573	-0.1651	-5.8452	0.0055	0.1984	-0.117	116	-11.6486	-27.7573
		103				28.6431	0.763	-26.7636	0.0069	0.2467	0.2879	7.6882	-0.237	-6.0627	0.0069	0.2467	-0.1723	116	-15.6431	-20.6882
		113				23.4641	0.6851	-28.027	0.0079	0.2838	0.2698	11.446	-0.3149	-5.3163	0.0079	0.2838	-0.2352	116	-20.4641	-14.4456
		123				19.0762	0.6056	-28.3219	0.0086	0.3075	0.2468	15.994	-0.3944	-3.6014	0.0086	0.3075	-0.3028	116	-26.0762	-8.9942
		133				15.4131	0.5281	-27.7607	0.0089	0.318	0.2213	21.268	-0.4719	-1.0303	0.0089	0.318	-0.373	116	-32.4131	-4.2675
		143				12.3916	0.4552	-26.5183	0.0089	0.3168	0.1952	27.182	-0.5448	2.2218	0.0089	0.3168	-0.4437	116	-39.3916	-0.1824
		153				9.9235	0.3885	-24.7888	0.0086	0.3062	0.1699	33.651	-0.6115	5.9611	0.0086	0.3062	-0.5138	116	-46.9235	**3.3493**
		144				12.1213	0.4482	-26.3641	0.0088	0.3161	0.1926	27.806	-0.5518	2.577	0.0088	0.3161	-0.4508	116	-40.1213	**0.1943**
Pearl Drycleaners	10	8	22.49	18	0.5	2.8523	0.9965	-1.613	0.0082	0.0007	0.0356	0.0014	-0.0035	-0.0051	0.0082	0.0007	-0.0002	10.25	-0.6023	-2.2514
		9				1.9775	0.962	-1.824	0.0649	0.0058	0.0382	0.0203	-0.038	-0.0152	0.0649	0.0058	-0.002	10.25	-0.7275	-1.2703
		10				1.188	0.8282	-1.9197	0.2002	0.018	0.0355	0.1244	-0.1718	0.0901	0.2002	0.018	-0.0092	10.25	-0.938	-0.3744
		11				0.5926	0.5786	-1.6659	0.3073	0.0277	0.026	0.4227	-0.4214	0.5449	0.3073	0.0277	-0.0232	10.25	-1.3426	**0.3273**
Standard Newspapers	9.05	36	22.49	70	0.5	0.0136	0.0103	-0.1405	0.0061	0.0018	0.0004	23.135	-0.9897	7.0947	0.0061	0.0018	-0.1605	25	-11.0136	-12.1347
		46				0.0029	0.0025	-0.0389	0.0017	0.0005	0.0001	32.06	-0.9975	9.2062	0.0017	0.0005	-0.2054	25	-21.0029	-11.0604
		56				0.0007	0.0007	-0.0116	0.0005	0.0001	0	40.995	-0.9993	11.2433	0.0005	0.0001	-0.2502	25	-31.0002	-18.9306
		66				0.0002	0.0002	-0.0038	0.0002	0	0	49.931	-0.9998	13.2609	0.0002	0	-0.2949	25	-41.0002	-8.9306
		76				0.0001	0.0001	-0.0013	0.0001	0	0	58.867	-0.9999	15.2732	0.0001	0	-0.3396	25	-51.0001	-7.8669
		86				0	0	-0.0005	0	0	0	67.803	-1	17.2838	0	0	-0.3843	25	-61	-6.8032

	96				0	0	-0.0002	0	0	0	76.74	-1	19.2939	0	0	-0.4289	25	-71	-5.7396
	106				0	0	-0.0001	0	0	0	85.676	-1	21.3038	0	0	-0.4736	25	-81	-4.6761
	116				0	0	0	0	0	0	94.613	-1	23.3137	0	0	-0.5183	25	-91	-3.6125
	126				0	0	0	0	0	0	103.55	-1	25.3235	0	0	-0.563	25	-101	-2.5489
	136				0	0	0	0	0	0	112.49	-1	27.3333	0	0	-0.6077	25	-111	-1.4853
	146				0	0	0	0	0	0	121.42	-1	29.3431	0	0	-0.6524	25	-121	-0.4217
	156				0	0	0	0	0	0	130.36	-1	31.3529	0	0	-0.697	25	-131	**0.6418**
	147				0	0	0	0	0	0	122.32	-1	29.5441	0	0	-0.6568	25	-122	-0.3154
	148				0	0	0	0	0	0	123.21	-1	29.7451	0	0	-0.6613	25	-123	-0.209
	149				0	0	0	0	0	0	124.1	-1	29.946	0	0	-0.6658	25	-124	-0.1027
	150				0	0	0	0	0	0	125	-1	30.147	0	0	-0.6702	25	-125	**0.0037**
Uchumi Supermarkets	39.75	21	22.49	45	0.5	21.01	0.9941	-4.3739	0.0013	0.0047	0.0925	0.0265	-0.0059	-0.1533	0.0013	0.0047	-0.0013	40	-2.01	-19.0265
		31				12.7176	0.9021	-7.3896	0.0137	0.0486	0.1157	0.6705	-0.0979	-1.1593	0.0137	0.0486	-0.0228	40	-3.7176	-9.6705
		41				6.5395	0.661	-9.0677	0.0289	0.1029	0.0987	3.4288	-0.339	-0.8275	0.0289	0.1029	-0.0845	40	-7.5395	-2.4288
		51				2.9657	0.3933	-7.7135	0.0304	0.1081	0.0633	8.7914	-0.6067	2.5365	0.0304	0.1081	-0.1645	40	-13.9657	**2.2086**
		42				6.0717	0.6329	-9.0556	0.0298	0.1059	0.0954	3.8547	-0.3671	-0.6145	0.0298	0.1059	-0.0922	40	-8.0717	-1.8547
		43				5.6305	0.6047	-9.0107	0.0304	0.1082	0.092	4.3071	-0.3953	-0.3686	0.0304	0.1082	-0.1001	40	-8.6305	-1.3071
		44				5.2154	0.5766	-8.9346	0.031	0.1101	0.0885	4.7856	-0.4234	-0.0914	0.031	0.1101	-0.1081	40	-9.2154	-0.7856
		45				4.8255	0.5488	-8.8291	0.0313	0.1113	0.0849	5.2894	-0.4512	0.215	0.0313	0.1113	-0.1161	40	-9.8255	-0.2894
		46				4.46	0.5214	-8.6965	0.0315	0.112	0.0813	5.8175	-0.4786	0.5486	0.0315	0.112	-0.1242	40	-10.46	**0.1825**

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JANUARY TO JUNE 1997

Company	Stock price	Exercise price	Rf	V	t	Call price	Call delta	Call theta	Call gamma	Call vega	Call rho	Put price	Put delta	Put theta	Put gamma	Put vega	Put rho	Stock price at expiration 30.6.97	Value of European call option	Value of European put option
Barclays Bank	115	95	22.49	17	0.5	30.126	0.9951	-19.1575	0.001	0.0115	0.4216	0.022	-0.0049	-0.0643	0.001	0.0115	-0.0029	110	-15.126	-15.022
		105				21.4	0.9601	-21.2076	0.0062	0.0699	0.4451	0.2324	-0.0399	-0.1047	0.0062	0.0699	-0.0241	110	-16.4	-5.2324
		115				13.4591	0.8403	-22.0652	0.0176	0.1976	0.4159	1.2279	-0.1597	1.0475	0.0176	0.1976	-0.098	110	-18.4591	**3.7721**
		106				20.5561	0.9529	-21.3815	0.0071	0.08	0.4451	0.2821	-0.0471	-0.0776	0.0071	0.08	-0.0285	110	-16.5561	-4.2821
		107				19.7206	0.9447	-21.5425	0.0081	0.0909	0.4446	0.3403	-0.0553	-0.0376	0.0081	0.0909	-0.0335	110	-16.7206	-3.3403
		108				18.8944	0.9355	-21.6882	0.0091	0.1025	0.4434	0.4077	-0.0645	0.0176	0.0091	0.1025	-0.0391	110	-16.8944	-2.4077
		109				18.0785	0.9253	-21.8162	0.0102	0.1148	0.4416	0.4855	-0.0747	0.0906	0.0102	0.1148	-0.0454	110	-17.0785	-1.4855
		110				17.2741	0.9139	-21.9239	0.0114	0.1277	0.4391	0.5747	-0.0861	0.184	0.0114	0.1277	-0.0524	110	-17.2741	-0.5747
		111				16.482	0.9015	-22.0084	0.0126	0.1412	0.4359	0.6763	-0.0985	0.3003	0.0126	0.1412	-0.06	110	-17.482	**0.3237**
City Trust Ltd	33	28	22.49	14	0.5	7.9802	0.9978	-5.6332	0.0021	0.0016	0.1247	0.0022	-0.0022	-0.0058	0.0021	0.0016	-0.0004	35.75	-0.2302	-7.7522
		38				0.8973	0.4053	-4.0725	0.1187	0.0905	0.0624	1.8557	-0.5947	3.5648	0.1187	0.0905	-0.1074	35.75	-3.1473	**0.3943**
		37				1.2719	0.5118	-4.8154	0.1221	0.0931	0.0781	1.3367	-0.4882	2.6209	0.1221	0.0931	-0.0872	35.75	-2.5219	**-0.0867**
CFC Bank	22.75	**12**	22.49	38	0.5	12.0295	0.9983	-2.4355	0.0009	0.0009	0.0534	0.0032	-0.0017	-0.0237	0.0009	0.0009	-0.0002	26	**1.9705**	-14.0032
		22				4.135	0.751	-4.8509	0.0519	0.051	0.0648	1.0451	-0.249	-0.4294	0.0519	0.051	-0.0336	26	-0.135	-5.0451
		32				0.748	0.2367	-2.9291	0.0505	0.0496	0.0232	6.5945	-0.7633	3.5022	0.0505	0.0496	-0.1198	26	-6.748	-0.5945
		21				4.7511	0.8025	-4.7359	0.0454	0.0447	0.0675	0.7675	-0.1975	-0.5153	0.0454	0.0447	-0.0263	26	**0.2489**	-5.7675
Diamond Trust Bank	36.5	21	22.49	25	0.5	17.7336	0.9999	-4.2216	0	0.0001	0.0938	0.0001	-0.0001	-0.001	0	0.0001	0	30.25	-8.4836	-9.2501
		31				8.9402	0.9504	-6.4523	0.0159	0.0265	0.1287	0.1431	-0.0496	-0.222	0.0159	0.0265	-0.0098	30.25	-9.6902	**0.6069**
		22				16.8402	0.9998	-4.4243	0.0001	0.0002	0.0983	0.0003	-0.0002	-0.0027	0.0001	0.0002	0	30.25	-8.5902	-8.2503
		23				15.947	0.9996	-4.6287	0.0002	0.0004	0.1027	0.0007	-0.0004	-0.0062	0.0002	0.0004	-0.0001	30.25	-8.697	-7.2507
		24				15.0544	0.999	-4.8364	0.0005	0.0009	0.107	0.0018	-0.001	-0.0129	0.0005	0.0009	-0.0002	30.25	-8.8044	-6.2518
		25				14.1631	0.9979	-5.0489	0.001	0.0017	0.1113	0.0041	-0.0021	-0.0244	0.001	0.0017	-0.0004	30.25	-8.9131	-5.2541
		26				13.274	0.9959	-5.2681	0.0019	0.0031	0.1154	0.0087	-0.0041	-0.0426	0.0019	0.0031	-0.0008	30.25	-9.024	-4.2587
		27				12.3886	0.9924	-5.4951	0.0032	0.0054	0.1192	0.0169	-0.0076	-0.0686	0.0032	0.0054	-0.0015	30.25	-9.1386	-3.2669
		28				11.5092	0.9869	-5.7301	0.0052	0.0087	0.1226	0.0312	-0.0131	-0.1027	0.0052	0.0087	-0.0025	30.25	-9.2592	-2.2812
		29				10.6387	0.9786	-5.9714	0.0079	0.0132	0.1254	0.0544	-0.0214	-0.1429	0.0079	0.0132	-0.0042	30.25	-9.3887	-1.3044
		30				9.7809	0.9667	-6.2145	0.0115	0.0192	0.1275	0.0902	-0.0333	-0.1851	0.0115	0.0192	-0.0065	30.25	-9.5309	-0.3402
Housing Finance Cc	24	18	22.49	14	0.5	7.9145	1	-3.6177	0	0	0.0804	0	0	-0.0001	0	0	0	23.5	-2.4145	-5.5
of Kenya		19				7.0209	0.9998	-3.8193	0.0003	0.0001	0.0849	0.0001	-0.0002	-0.0007	0.0003	0.0001	0	23.5	-2.5209	-4.5001
		20				6.128	0.9988	-4.0225	0.0017	0.0007	0.0892	0.0008	-0.0012	-0.0028	0.0017	0.0007	-0.0002	23.5	-2.628	-3.5008
		21				5.2379	0.9944	-4.2274	0.0068	0.0027	0.0931	0.0044	-0.0056	-0.0068	0.0068	0.0027	-0.0007	23.5	-2.7379	-2.5044
		22				4.3574	0.9805	-4.425	0.0199	0.008	0.0959	0.0175	-0.0195	-0.0034	0.0199	0.008	-0.0024	23.5	-2.8574	-1.5175
		23				3.5015	0.9469	-4.5805	0.0455	0.0184	0.0961	0.0553	-0.0531	0.042	0.0455	0.0184	-0.0067	23.5	-3.0015	-0.5553
		24				2.696	0.8821	-4.6242	0.0832	0.0335	0.0924	0.1434	-0.1179	0.1993	0.0832	0.0335	-0.0149	23.5	-3.196	**0.3566**
ICDC Investments	40	**12**	22.49	76	0.5	29.3016	0.9967	-2.5897	0.0005	0.0028	0.0528	0.0253	-0.0033	-0.178	0.0005	0.0028	-0.0008	50	**8.6984**	-38.0253
Co Ltd		**22**				20.9787	0.9441	-6.1964	0.0052	0.0319	0.0839	0.6388	-0.0559	-1.7748	0.0052	0.0319	-0.0144	50	**7.0213**	-28.6388
		32				14.2917	0.8141	-9.8645	0.0125	0.0757	0.0914	2.8882	-0.1859	-3.4331	0.0125	0.0757	-0.0516	50	**3.7083**	-20.8882
		42				9.502	0.6507	-11.673	0.0172	0.1047	0.0826	7.0349	-0.3493	-3.2318	0.0172	0.1047	-0.105	50	-1.502	-15.0349

		52				6.269	0.4959	-11.6265	0.0186	0.1128	0.0678	12.738	-0.5041	-1.1755	0.0186	0.1128	-0.1645	50	-8.269	-10.7384
		62				4.1426	0.3678	-10.4782	0.0175	0.1066	0.0529	19.548	-0.6322	1.9825	0.0175	0.1066	-0.2242	50	-16.1426	-7.5484
		72				2.7555	0.269	-8.8948	0.0154	0.0933	0.04	27.098	-0.731	5.5758	0.0154	0.0933	-0.2817	50	-24.7555	-5.0977
		41				9.9033	0.6671	-11.5859	0.0169	0.1028	0.0839	6.5426	-0.3329	-3.3457	0.0169	0.1028	-0.0993	50	-0.9033	-15.5426
		40				10.3207	0.6837	-11.4791	0.0166	0.1007	0.0851	6.0664	-0.3163	-3.4399	0.0166	0.1007	-0.0936	50	-0.3207	-16.0664
		39				10.7547	0.7002	-11.352	0.0162	0.0983	0.0863	5.6068	-0.2998	-3.5137	0.0162	0.0983	-0.088	50	**0.2453**	-16.6068
Jubilee Insurance Co Ltd	38.5	**25**	22.49	28	0.5	16.1642	0.9978	-5.057	0.0009	0.0019	0.1113	0.0052	-0.0022	-0.0325	0.0009	0.0019	-0.0004	41.5	**0.3358**	-16.5052
		35				7.7415	0.8746	-7.4044	0.0271	0.0562	0.1297	0.519	-0.1254	-0.3701	0.0271	0.0562	-0.0267	41.5	-1.2415	-7.019
		45				2.3212	0.4519	-6.4092	0.052	0.1078	0.0754	4.0351	-0.5481	2.6349	0.052	0.1078	-0.1257	41.5	-5.8212	-0.5351
		55				0.4494	0.1283	-2.6075	0.0275	0.0571	0.0224	11.1	-0.8717	8.4464	0.0275	0.0571	-0.2233	41.5	-13.9494	**2.4003**
		30				11.775	0.973	-6.2518	0.0082	0.017	0.1284	0.0843	-0.027	-0.2224	0.0082	0.017	-0.0056	41.5	-0.275	-11.5843
		29				12.6374	0.9821	-5.9977	0.0058	0.012	0.1259	0.053	-0.0179	-0.1693	0.0058	0.012	-0.0037	41.5	-0.1374	-12.553
		28				13.51	0.9886	-5.7496	0.0039	0.0082	0.1227	0.032	-0.0114	-0.1222	0.0039	0.0082	-0.0024	41.5	-0.01	-13.532
		27				14.3901	0.993	-5.5099	0.0025	0.0053	0.1192	0.0184	-0.007	-0.0834	0.0025	0.0053	-0.0014	41.5	**0.1099**	-14.5184
		46				2.0048	0.4083	-6.0444	0.0509	0.1057	0.0686	4.6124	-0.5917	3.2007	0.0509	0.1057	-0.137	41.5	-6.5048	-0.1124
		47				1.7241	0.3667	-5.6569	0.0494	0.1025	0.062	5.2253	-0.6333	3.7891	0.0494	0.1025	-0.148	41.5	-7.2241	**0.2747**
KCB Ltd	90	**53**	22.49	34	0.5	42.6552	0.9974	-10.7705	0.0004	0.0052	0.2355	0.0182	-0.0026	-0.1185	0.0004	0.0052	-0.0013	115	**19.3448**	-62.0182
		63				33.865	0.9808	-13.247	0.0022	0.0297	0.2721	0.1645	-0.0192	-0.5852	0.0022	0.0297	-0.0094	115	**18.135**	-52.1645
		73				25.5326	0.9277	-16.0138	0.0064	0.0876	0.2898	0.7684	-0.0723	-1.3422	0.0064	0.0876	-0.0364	115	**16.4674**	-42.7684
		83				18.1602	0.8224	-18.1919	0.012	0.1656	0.2793	2.3325	-0.1776	-1.5105	0.012	0.1656	-0.0916	115	**13.8398**	-34.3325
		93				12.1754	0.6742	-18.7038	0.0167	0.2293	0.2425	5.2841	-0.3258	-0.0126	0.0167	0.2293	-0.173	115	**9.8246**	-27.2841
		103				7.7244	0.5107	-17.2283	0.0184	0.2538	0.1912	9.7696	-0.4893	3.4727	0.0184	0.2538	-0.269	115	**4.2756**	-21.7696
		113				4.6676	0.3599	-14.3298	0.0173	0.2381	0.1386	15.649	-0.6401	8.3809	0.0173	0.2381	-0.3663	115	-2.6676	-17.6492
		123				2.7062	0.2384	-10.9198	0.0143	0.1971	0.0938	22.624	-0.7616	13.8008	0.0143	0.1971	-0.4558	115	-10.7062	-14.6241
		133				1.5162	0.15	-7.7395	0.0108	0.1484	0.0599	30.371	-0.85	18.9908	0.0108	0.1484	-0.5344	115	-19.5162	-12.3706
		108				6.0385	0.4323	-15.9006	0.0182	0.2502	0.1644	12.552	-0.5677	5.8053	0.0182	0.2502	-0.3182	115	0.9615	-19.5518
		109				5.7404	0.4173	-15.602	0.018	0.2484	0.1591	13.147	-0.5827	6.3048	0.018	0.2484	-0.3279	115	**0.2596**	-19.1474
		110				5.4546	0.4026	-15.2947	0.0179	0.2463	0.1539	13.755	-0.5974	6.8132	0.0179	0.2463	-0.3376	115	-0.4546	-18.7552
National Bank Ltd	16	9	22.49	31	0.5	7.9578	0.9994	-1.8138	0.0006	0.0002	0.0402	0.0006	-0.0006	-0.005	0.0006	0.0002	0	15.2	-1.7578	-6.2006
		19				1.0018	0.4359	-2.7243	0.1123	0.0446	0.0299	1.981	-0.5641	1.0943	0.1123	0.0446	-0.055	15.2	-4.8018	**1.819**
																		15.2	15.2	-15.2
		15				2.9749	0.8204	-3.2021	0.0747	0.0296	0.0508	0.3795	-0.1796	-0.1874	0.0747	0.0296	-0.0163	15.2	-2.7749	-0.5795
		16				2.3423	0.7332	-3.2643	0.0937	0.0372	0.0469	0.6406	-0.2668	-0.0486	0.0937	0.0372	-0.0245	15.2	-3.1423	**0.1594**
		17				1.8029	0.6353	-3.1986	0.1071	0.0425	0.0418	0.9948	-0.3647	0.218	0.1071	0.0425	-0.0341	15.2	-3.6029	0.8052
		18				1.3578	0.534	-3.0102	0.1133	0.045	0.0359	1.4433	-0.466	0.6074	0.1133	0.045	-0.0445	15.2	-4.1578	1.3567
NIC Bank Ltd	50	**36**	22.49	24	0.5	17.8389	0.9964	-7.2846	0.0013	0.0039	0.1599	0.01	-0.0036	-0.0493	0.0013	0.0039	-0.001	60	**6.1611**	-24.01
		46				9.3654	0.8923	-9.4991	0.0218	0.0655	0.1762	0.4729	-0.1077	-0.254	0.0218	0.0655	-0.0293	60	**4.6346**	-14.4729
		56				3.3606	0.5318	-8.5982	0.0469	0.1406	0.1161	3.4046	-0.4682	2.6567	0.0469	0.1406	-0.1341	60	**0.6394**	-7.4046
		66				0.8058	0.1871	-4.2043	0.0317	0.095	0.0428	9.7861	-0.8129	9.0604	0.0317	0.095	-0.2521	60	-6.8058	-3.7861
		57				2.9644	0.4902	-8.2295	0.047	0.141	0.1077	3.902	-0.5098	3.2264	0.047	0.141	-0.147	60	**0.0356**	-6.902
		58				2.6042	0.4494	-7.8261	0.0466	0.1399	0.0993	4.4355	-0.5506	3.8308	0.0466	0.1399	-0.1598	60	-0.6042	-6.4355
Pan Africa Ins Co	51	**29**	22.49	34	0.5	25.0906	0.9983	-5.8736	0.0004	0.0019	0.1291	0.0063	-0.0017	-0.0452	0.0004	0.0019	-0.0005	63	**8.9094**	-34.0063

		39				16.3915	0.9558	-8.4221	0.0076	0.0337	0.1618	0.2436	-0.0442	-0.5839	0.0076	0.0337	-0.0125	63	**7.6085**	-24.2436
		49				9.0166	0.7747	-10.5379	0.0245	0.1082	0.1525	1.805	-0.2253	-0.6899	0.0245	0.1082	-0.0665	63	**4.9834**	-15.805
		59				4.147	0.4928	-9.61	0.0325	0.1438	0.1049	5.8719	-0.5072	2.2478	0.0325	0.1438	-0.1587	63	-0.147	-9.8719
		69				1.6436	0.2516	-6.4262	0.026	0.115	0.0559	12.305	-0.7484	7.4414	0.026	0.115	-0.2524	63	-7.6436	-6.3049
		50				8.4076	0.7487	-10.6036	0.026	0.1149	0.1489	2.0898	-0.2513	-0.5546	0.026	0.1149	-0.0745	63	**4.5924**	-15.0898
		51				7.8257	0.7217	-10.6331	0.0274	0.121	0.1449	2.4015	-0.2783	-0.3831	0.0274	0.121	-0.083	63	**4.1743**	-14.4015
		52				7.2712	0.694	-10.6258	0.0286	0.1265	0.1406	2.7406	-0.306	-0.1748	0.0286	0.1265	-0.0917	63	**3.7288**	-13.7406
		53				6.7441	0.6657	-10.5817	0.0297	0.1313	0.136	3.1072	-0.3343	0.0702	0.0297	0.1313	-0.1008	63	**3.2559**	-13.1072
		54				6.2446	0.6369	-10.5014	0.0306	0.1353	0.1312	3.5012	-0.3631	0.3515	0.0306	0.1353	-0.1101	63	**2.7554**	-12.5012
		55				5.7723	0.6079	-10.3859	0.0313	0.1386	0.1262	3.9226	-0.3921	0.668	0.0313	0.1386	-0.1196	63	**2.2277**	-11.9226
		56				5.3269	0.5788	-10.2369	0.0319	0.141	0.121	4.3709	-0.4212	1.018	0.0319	0.141	-0.1293	63	**1.6731**	-11.3709
		57				4.908	0.5499	-10.0563	0.0323	0.1427	0.1157	4.8456	-0.4501	1.3996	0.0323	0.1427	-0.139	63	**1.092**	-10.8456
		58				4.515	0.5211	-9.8464	0.0325	0.1437	0.1103	5.3462	-0.4789	1.8104	0.0325	0.1437	-0.1488	63	**0.485**	-10.3462
		59				4.147	0.4928	-9.61	0.0325	0.1438	0.1049	5.8719	-0.5072	2.2478	0.0325	0.1438	-0.1587	63	-0.147	-9.8719
Standard Chartered Bank Ltd	54	**43**	22.49	13	0.5	15.5735	0.9999	-8.6428	0.0001	0.0001	0.1921	0.0001	-0.0001	-0.0007	0.0001	0.0001	0	47	-11.5735	-4.0001
		53				6.7976	0.9296	-10.4301	0.0272	0.0515	0.217	0.1606	-0.0704	0.2218	0.0272	0.0515	-0.0198	47	-12.7976	**5.8394**
		44				14.68	0.9998	-8.8446	0.0002	0.0003	0.1965	0.0003	-0.0002	-0.0015	0.0002	0.0003	-0.0001	47	-11.68	-3.0003
		45				13.7869	0.9994	-9.047	0.0004	0.0008	0.2009	0.0008	-0.0006	-0.0029	0.0004	0.0008	-0.0002	47	-11.7869	-2.0008
		46				12.8943	0.9987	-9.2501	0.0009	0.0016	0.2052	0.0019	-0.0013	-0.005	0.0009	0.0016	-0.0004	47	-11.8943	-1.0019
		47				12.003	0.9973	-9.4537	0.0017	0.0032	0.2093	0.0042	-0.0027	-0.0076	0.0017	0.0032	-0.0008	47	-12.003	-0.0042
		48				11.1139	0.9946	-9.6564	0.0031	0.0059	0.213	0.0087	-0.0054	-0.0093	0.0031	0.0059	-0.0015	47	-12.1139	**0.9913**

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JANUARY TO JUNE 1997

Company	*Stock* price	*Exercise* price	*Rf*	*V*	*t*	*Call* price	*Call* delta	*Call* theta	*Call* gamma	*Call* vega	*Call* rho	*Put* price	*Put* delta	*Put* theta	*Put* gamma	*Put vega*	*Put rho*	*Stock price at expiration 30.6.97*	*Value of European call option*	*Value of European put option*
Bamburi Cement Ltd	40	20	22.49	25	0.5	22.1424	0.9964	-4.1201	0.0008	0.003	0.0886	0.0153	-0.0036	-0.1005	0.0008	0.003	-0.0008	37.5	-4.6424	-17.5153
		30				13.7052	0.9217	-7.071	0.0115	0.0414	0.1158	0.5144	-0.0783	-1.0416	0.0115	0.0414	-0.0182	37.5	-6.2052	-8.0144
		40				7.2076	0.6958	-9.0917	0.0275	0.099	0.1031	2.9533	-0.3042	-1.0524	0.0275	0.099	-0.0756	37.5	-9.7076	-0.4533
		50				3.3288	0.4251	-8.0639	0.0308	0.1108	0.0684	8.0109	-0.5749	1.9851	0.0308	0.1108	-0.155	37.5	-15.8288	4.4891
		41				6.7057	0.6682	-9.1224	0.0285	0.1027	0.1001	3.345	-0.3318	-0.8822	0.0285	0.1027	-0.0831	37.5	-10.2057	**0.155**
BAT Ltd	83	45	22.49	30	0.5	42.7871	0.9998	-9.0541	0	0.0005	0.201	0.001	-0.0002	-0.01	0	0.0005	-0.0001	61	-26.7871	-16.001
		55				33.8793	0.995	-11.2084	0.0008	0.0085	0.2435	0.0297	-0.005	-0.1545	0.0008	0.0085	-0.0022	61	-27.8793	-6.0297
		65				25.1932	0.9632	-13.732	0.0046	0.0473	0.2737	0.2799	-0.0368	-0.6682	0.0046	0.0473	-0.0167	61	-29.1932	**3.7201**
		56				32.9948	0.9936	-11.4429	0.001	0.0105	0.2474	0.0387	-0.0064	-0.188	0.001	0.0105	-0.0028	61	-27.9948	-5.0387
		57				32.1124	0.992	-11.6819	0.0012	0.0129	0.2511	0.05	-0.008	-0.226	0.0012	0.0129	-0.0036	61	-28.1124	-4.05
		58				31.2328	0.99	-11.9255	0.0015	0.0157	0.2547	0.064	-0.01	-0.2686	0.0015	0.0157	-0.0045	61	-28.2328	-3.064
		59				30.3562	0.9876	-12.1735	0.0018	0.0188	0.2581	0.0811	-0.0124	-0.3157	0.0018	0.0188	-0.0055	61	-28.3562	-2.0811
		60				29.4832	0.9848	-12.4258	0.0022	0.0224	0.2613	0.1018	-0.0152	-0.367	0.0022	0.0224	-0.0068	61	-28.4832	-1.1018
		61				28.6144	0.9816	-12.682	0.0026	0.0265	0.2643	0.1266	-0.0184	-0.4223	0.0026	0.0265	-0.0083	61	-28.6144	-0.1266
		62				27.7504	0.9779	-12.9416	0.003	0.031	0.2671	0.1562	-0.0221	-0.4808	0.003	0.031	-0.01	61	-28.7504	**0.8438**
BOC Gases Ltd	70	**11**	22.49	110	0.5	60.2056	0.9982	-2.4869	0.0001	0.0028	0.0483	0.0357	-0.0018	-0.2761	0.0001	0.0028	-0.0008	76	**4.7944**	-65.0357
		21				51.7297	0.9813	-6.3045	0.0008	0.0226	0.0848	0.4962	-0.0187	-2.0839	0.0008	0.0226	-0.009	76	**3.2703**	-55.4962
		31				44.1549	0.943	-11.1436	0.0021	0.0566	0.1093	1.8578	-0.057	-4.9132	0.0021	0.0566	-0.0292	76	**0.8451**	-46.8578
		41				37.6353	0.889	-15.8362	0.0035	0.0937	0.123	4.2746	-0.111	-7.596	0.0035	0.0937	-0.0602	76	-2.6353	-39.2746
		51				32.1236	0.8265	-19.7439	0.0047	0.1269	0.1287	7.6993	-0.1735	-9.4939	0.0047	0.1269	-0.0992	76	-7.1236	-32.6993
		61				27.498	0.7613	-22.6774	0.0057	0.1534	0.129	12.01	-0.2387	-10.418	0.0057	0.1534	-0.1436	76	-12.498	-27.0102
		71				23.6231	0.6968	-24.6783	0.0064	0.1729	0.1258	17.072	-0.3032	-10.409	0.0064	0.1729	-0.1915	76	-18.6231	-22.0717
		81				20.3733	0.6353	-25.8795	0.0069	0.186	0.1205	22.758	-0.3647	-9.6001	0.0069	0.186	-0.2414	76	-25.3733	-17.7583
		91				17.6406	0.5778	-26.4357	0.0072	0.1937	0.114	28.962	-0.4222	-8.1465	0.0072	0.1937	-0.2926	76	-32.6406	-13.962
		101				15.3345	0.5248	-26.4921	0.0073	0.1971	0.107	35.592	-0.4752	-6.1932	0.0073	0.1971	-0.3443	76	-40.3345	-10.5923
		36				40.7633	0.9175	-13.5615	0.0028	0.0753	0.1173	2.9344	-0.0825	-6.3262	0.0028	0.0753	-0.0435	76	-0.7633	-42.9344
		35				41.4203	0.9229	-13.0869	0.0027	0.0716	0.1159	2.6978	-0.0771	-6.0526	0.0027	0.0716	-0.0405	76	-0.4203	-43.6978
		34				42.0879	0.9281	-12.607	0.0025	0.0678	0.1144	2.4717	-0.0719	-5.7737	0.0025	0.0678	-0.0375	76	-0.0879	-44.4717
		33				42.7662	0.9332	-12.1227	0.0024	0.0641	0.1128	2.2564	-0.0668	-5.4903	0.0024	0.0641	-0.0347	76	**0.2338**	-45.2564
Carbacid Investments l	82	57	22.49	19	0.5	31.0628	0.9998	-11.4594	0.0001	0.0003	0.2546	0.0004	-0.0002	-0.0036	0.0001	0.0003	-0.0001	84	-4.0628	-27.0004
		67				22.1565	0.992	-13.5529	0.002	0.0127	0.2959	0.0305	-0.008	-0.0873	0.002	0.0127	-0.0034	84	-5.1565	-17.0305
		77				13.6432	0.915	-15.5203	0.0141	0.0902	0.3069	0.4536	-0.085	-0.0449	0.0141	0.0902	-0.0371	84	-6.6432	-7.4536
		87				6.7356	0.6785	-14.9458	0.0325	0.2077	0.2445	2.4825	-0.3215	2.5395	0.0325	0.2077	-0.1442	84	-9.7356	**0.5175**
		86				7.3121	0.7087	-15.2045	0.0311	0.1989	0.254	2.1653	-0.2913	2.0798	0.0311	0.1989	-0.1302	84	-9.3121	-0.1653
Crown Berger Ltd	12.5	7	22.49	37	0.5	6.2474	0.9973	-1.4261	0.0026	0.0007	0.0311	0.0029	-0.0027	-0.0192	0.0026	0.0007	-0.0002	10.5	-2.7474	-3.5029
		17				0.4743	0.2694	-1.7308	0.101	0.0292	0.0145	3.1662	-0.7306	1.6859	0.101	0.0292	-0.0615	10.5	-6.9743	**3.3338**
		8				5.3653	0.9883	-1.6717	0.0094	0.0027	0.0349	0.0144	-0.0117	-0.0639	0.0094	0.0027	-0.0008	10.5	-2.8653	-2.5144
		9				4.5066	0.9653	-1.951	0.0234	0.0068	0.0378	0.0494	-0.0347	-0.1422	0.0234	0.0068	-0.0024	10.5	-3.0066	-1.5494
		10				3.6934	0.9212	-2.2397	0.0449	0.013	0.0391	0.1298	-0.0788	-0.2299	0.0449	0.013	-0.0056	10.5	-3.1934	-0.6298
		11				2.95	0.853	-2.4868	0.0703	0.0203	0.0386	0.2801	-0.147	-0.2761	0.0703	0.0203	-0.0106	10.5	-3.45	**0.2199**

Dunlop Kenya Ltd	275	11	22.49	161	0.5	265.195	0.9998	-2.468	0	0.0017	0.0487	0.0255	-0.0002	-0.2572	0	0.0017	-0.0005	270	-6.1954	-259.0255
		21				256.454	0.9983	-5.7856	0	0.0107	0.0904	0.2208	-0.0017	-1.565	0	0.0107	-0.0035	270	-7.4543	-249.2208
		31				248.008	0.9951	-10.1868	0	0.0274	0.1283	0.7113	-0.0049	-3.9564	0	0.0274	-0.0102	270	-9.0084	-239.7113
		41				239.914	0.9904	-15.3812	0.0001	0.0502	0.1622	1.5535	-0.0096	-7.141	0.0001	0.0502	-0.021	270	-10.9142	-230.5535
		51				232.19	0.9841	-21.0817	0.0001	0.0772	0.1923	2.7653	-0.0159	-10.832	0.0001	0.0772	-0.0356	270	-13.1896	-221.7653
		61				224.833	0.9767	-27.0617	0.0002	0.1069	0.2189	4.3452	-0.0233	-14.802	0.0002	0.1069	-0.0537	270	-15.833	-213.3452
		71				217.833	0.9684	-33.1541	0.0002	0.1382	0.2423	6.2817	-0.0316	-18.885	0.0002	0.1382	-0.0749	270	-18.8331	-205.2817
		81				211.174	0.9592	-39.2386	0.0003	0.1702	0.2631	8.5587	-0.0408	-22.959	0.0003	0.1702	-0.0989	270	-22.1737	-197.5587
		91				204.837	0.9494	-45.2307	0.0003	0.2023	0.2813	11.158	-0.0506	-26.942	0.0003	0.2023	-0.1253	270	-25.8365	-190.1579
		101				198.803	0.9392	-51.0719	0.0004	0.2341	0.2973	14.061	-0.0608	-30.773	0.0004	0.2341	-0.1539	270	-29.8029	-183.0607
		111				193.055	0.9285	-56.7225	0.0004	0.2653	0.3115	17.249	-0.0715	-34.414	0.0004	0.2653	-0.1845	270	-34.0545	-176.2487
		121				187.574	0.9176	-62.157	0.0005	0.2956	0.3238	20.704	-0.0824	-37.838	0.0005	0.2956	-0.2168	270	-38.5736	-169.7043
		131				182.344	0.9065	-67.3598	0.0005	0.3249	0.3347	24.411	-0.0935	-41.031	0.0005	0.3249	-0.2506	270	-43.3437	-163.4108
		141				177.349	0.8952	-72.3227	0.0006	0.3531	0.3442	28.353	-0.1048	-43.985	0.0006	0.3531	-0.2858	270	-48.349	-157.3525
		151				172.575	0.8839	-77.0429	0.0006	0.3801	0.3525	32.515	-0.1161	-46.695	0.0006	0.3801	-0.3222	270	-53.575	-151.5149
		161				168.008	0.8725	-81.5212	0.0007	0.4059	0.3596	36.885	-0.1275	-49.164	0.0007	0.4059	-0.3597	270	-59.0081	-145.8845
		171				163.636	0.8611	-85.7615	0.0007	0.4305	0.3658	41.449	-0.1389	-51.394	0.0007	0.4305	-0.3982	270	-64.6358	-140.4486
		181				159.447	0.8498	-89.7692	0.0007	0.4539	0.3712	46.196	-0.1502	-53.392	0.0007	0.4539	-0.4376	270	-70.4465	-135.1957
		191				155.429	0.8385	-93.5513	0.0008	0.4761	0.3757	51.115	-0.1615	-55.164	0.0008	0.4761	-0.4777	270	-76.4293	-130.115
		201				151.574	0.8272	-97.1156	0.0008	0.4972	0.3796	56.196	-0.1728	-56.719	0.0008	0.4972	-0.5185	270	-82.5743	-125.1964
		211				147.872	0.8161	%-100.47	0.0008	0.5171	0.3828	61.431	-0.1839	-58.064	0.0008	0.5171	-0.56	270	-88.8723	-120.4307
		221				144.315	0.8051	%-103.62	0.0009	0.5359	0.3855	66.809	-0.1949	-59.208	0.0009	0.5359	-0.602	270	-95.3145	-115.8094
		231				140.893	0.7942	%-106.58	0.0009	0.5537	0.3876	72.324	-0.2058	-60.16	0.0009	0.5537	-0.6446	270	-101.8931	-111.3244
		241				137.601	0.7835	%-109.36	0.0009	0.5705	0.3892	77.968	-0.2165	-60.929	0.0009	0.5705	-0.6876	270	-108.6007	-106.9684
		251				134.43	0.7728	%-111.96	0.001	0.5864	0.3905	83.735	-0.2272	-61.523	0.001	0.5864	-0.731	270	-115.4304	-102.7345
		261				131.376	0.7624	%-114.40	0.001	0.6013	0.3914	89.616	-0.2376	-61.95	0.001	0.6013	-0.7748	270	-122.3756	-98.6162
		271				128.431	0.752	%-116.68	0.001	0.6153	0.3919	95.608	-0.248	-62.219	0.001	0.6153	-0.819	270	-129.4306	-94.6076
		281				125.59	0.7418	%-118.81	0.001	0.6284	0.3921	101.7	-0.2582	-62.337	0.001	0.6284	-0.8635	270	-136.5897	-90.7031
		291				122.848	0.7318	%-120.79	0.0011	0.6408	0.392	107.9	-0.2682	-62.313	0.0011	0.6408	-0.9082	270	-143.8476	-86.8975
E A Cables Ltd	37	23	22.49	28	0.5	16.4485	0.9989	-4.6395	0.0005	0.0009	0.1026	0.0023	-0.0011	-0.0169	0.0005	0.0009	-0.0002	33	-6.4485	-10.0023
		33				7.9181	0.8934	-7.0002	0.0251	0.0481	0.1257	0.4083	-0.1066	-0.3678	0.0251	0.0481	-0.0218	33	-7.9181	-0.4083
		43				2.3146	0.4633	-6.245	0.0542	0.1039	0.0741	3.7412	-0.5367	2.3972	0.0542	0.1039	-0.118	33	-12.3146	**6.2588**
		34				7.1728	0.863	-7.1748	0.0299	0.0574	0.1238	0.5566	-0.137	-0.3414	0.0299	0.0574	-0.0281	33	-8.1728	**0.4434**
E A Packaging Ltd	70	29	22.49	49	0.5	44.0932	0.9988	-5.9028	0.0002	0.0019	0.1291	0.0088	-0.0012	-0.0744	0.0002	0.0019	-0.0005	67	-6.0932	-38.0088
		39				35.2867	0.9856	-8.4674	0.0015	0.0181	0.1685	0.1388	-0.0144	-0.6292	0.0015	0.0181	-0.0057	67	-7.2867	-28.1388
0.7741		49				26.9812	0.9366	-11.6921	0.0051	0.0615	0.1929	0.7697	-0.0634	-1.8441	0.0051	0.0615	-0.026	67	-8.9812	-18.7697
0.1715		59				19.7045	0.8392	-14.7004	0.0101	0.1208	0.1952	2.4294	-0.1608	-2.8426	0.0101	0.1208	-0.0684	67	-11.7045	-10.4294
-3.3273		**69**				13.8166	0.7052	-16.3603	0.0142	0.1707	0.1777	5.4779	-0.2948	-2.4927	0.0142	0.1707	-0.1306	67	-15.8166	-3.4779
0.0253		**79**				9.3728	0.5591	-16.2635	0.0163	0.1953	0.1488	9.9705	-0.4409	-0.3861	0.0163	0.1953	-0.2042	67	-21.3728	**2.0295**
0.0441																				
0.0171		70				13.3088	0.6907	-16.4286	0.0145	0.1745	0.1752	5.8637	-0.3093	-2.36	0.0145	0.1745	-0.1376	67	-16.3088	-2.8637
		71				12.8154	0.6761	-16.4788	0.0148	0.1779	0.1726	6.264	-0.3239	-2.2092	0.0148	0.1779	-0.1447	67	-16.8154	-2.264
15.5944		72				12.3365	0.6615	-16.5111	0.0151	0.1811	0.1698	6.6788	-0.3385	-2.0405	0.0151	0.1811	-0.1519	67	-17.3365	-1.6788
-0.8285		73				11.8719	0.6468	-16.5257	0.0153	0.1839	0.167	7.1077	-0.3532	-1.8541	0.0153	0.1839	-0.1592	67	-17.8719	-1.1077
5.5159		74				11.4213	0.6321	-16.5229	0.0155	0.1865	0.1641	7.5508	-0.3679	-1.6504	0.0155	0.1865	-0.1665	67	-18.4213	-0.5508
0.0253		75				10.9846	0.6174	-16.5031	0.0157	0.1889	0.1612	8.0078	-0.3826	-1.4296	0.0157	0.1889	-0.1739	67	-18.9846	-0.0078
0.0441		**76**				10.5617	0.6027	-16.4668	0.0159	0.1909	0.1581	8.4785	-0.3973	-1.1923	0.0159	0.1909	-0.1814	67	-19.5617	**0.5215**
-0.1795																				
EA Portland Cement Lt	24.5	**9**	22.49	58	0.5	16.4629	0.9983	-1.8542	0.0006	0.001	0.04	0.0057	-0.0017	-0.0454	0.0006	0.001	-0.0002	44	**18.5371**	-35.0057
		19				8.3592	0.8641	-5.0725	0.0217	0.0378	0.0641	0.8384	-0.1359	-1.2539	0.0217	0.0378	-0.0208	44	**16.6408**	-25.8384
		29				3.4257	0.5271	-6.1335	0.0396	0.069	0.0474	4.8413	-0.4729	-0.305	0.0396	0.069	-0.0821	44	**11.5743**	-19.8413

		39				1.2796	0.2565	-4.3615	0.0321	0.0558	0.025	11.632	-0.7435	3.4767	0.0321	0.0558	-0.1492	44	**3.7204**	-16.6316
		46				0.6331	0.1453	-2.9516	0.0227	0.0395	0.0146	17.241	-0.8547	6.2935	0.0227	0.0395	-0.1909	44	-2.6331	-15.2406
		40				1.1574	0.237	-4.1477	0.0307	0.0535	0.0232	12.403	-0.763	3.8916	0.0307	0.0535	-0.1555	44	2.8426	-16.4031
		41				1.0468	0.2188	-3.9361	0.0294	0.0511	0.0216	13.186	-0.7812	4.3041	0.0294	0.0511	-0.1616	44	1.9532	-16.1861
		42				0.9466	0.2019	-3.7281	0.028	0.0488	0.02	13.98	-0.7981	4.713	0.028	0.0488	-0.1677	44	1.0534	-15.9796
		43				0.8561	0.1861	-3.5249	0.0267	0.0464	0.0185	14.783	-0.8139	5.1173	0.0267	0.0464	-0.1736	44	**0.1439**	-15.7827
		44				0.7741	0.1715	-3.3273	0.0253	0.0441	0.0171	15.594	-0.8285	5.5159	0.0253	0.0441	-0.1795	44	-0.7741	-15.5944
Firestone EA Ltd	30	17	22.49	35	0.5	14.8128	0.998	-3.4496	0.0009	0.0014	0.0756	0.0047	-0.002	-0.033	0.0009	0.0014	-0.0003	28	-3.8128	-11.0047
		27				6.5619	0.8423	-5.9967	0.0325	0.0511	0.0935	0.6903	-0.1577	-0.5702	0.0325	0.0511	-0.0271	28	-5.5619	-1.6903
		37				1.8084	0.3939	-5.1072	0.0518	0.0816	0.05	4.8731	-0.6061	2.3291	0.0518	0.0816	-0.1153	28	-10.8084	**4.1269**
		28				5.8896	0.8042	-6.1535	0.0372	0.0586	0.0912	0.9116	-0.1958	-0.5261	0.0372	0.0586	-0.0339	28	-5.8896	-0.9116
		29				5.26	0.7627	-6.2569	0.0416	0.0655	0.0881	1.1756	-0.2373	-0.4285	0.0416	0.0655	-0.0415	28	-6.26	-0.1756
		30				4.6748	0.7184	-6.3019	0.0455	0.0716	0.0844	1.484	-0.2816	-0.2725	0.0455	0.0716	-0.0497	28	-6.6748	**0.516**
EABL	52.5	**37**	22.49	25	0.5	19.4455	0.9966	-7.4892	0.0011	0.0038	0.1644	0.0102	-0.0034	-0.053	0.0011	0.0038	-0.001	60	**3.5545**	-23.0102
		47				10.9071	0.9116	-9.7976	0.0173	0.0595	0.1848	0.4083	-0.0884	-0.3516	0.0173	0.0595	-0.0253	60	**2.0929**	-13.4083
		57				4.4768	0.6023	-9.6847	0.0416	0.1432	0.1357	2.9144	-0.3977	1.7711	0.0416	0.1432	-0.119	60	-1.4768	-5.9144
		67				1.3118	0.2562	-5.7176	0.0347	0.1195	0.0607	8.6858	-0.7438	7.7481	0.0347	0.1195	-0.2387	60	-8.3118	-1.6858
		48				10.1321	0.8909	-9.9752	0.0201	0.0694	0.1832	0.527	-0.1091	-0.3282	0.0201	0.0694	-0.0313	60	**1.8679**	-12.527
		49				9.3812	0.8675	-10.1223	0.0231	0.0796	0.1808	0.6697	-0.1325	-0.2743	0.0231	0.0796	-0.0381	60	**1.6188**	-11.6697
		50				8.6568	0.8415	-10.233	0.0261	0.0898	0.1776	0.8389	-0.1585	-0.184	0.0261	0.0898	-0.0458	60	**1.3432**	-10.8389
		51				7.9611	0.8129	-10.3022	0.029	0.0998	0.1736	1.0369	-0.1871	-0.0522	0.029	0.0998	-0.0543	60	**1.0389**	-10.0369
		52				7.2961	0.7819	-10.3255	0.0317	0.1094	0.1688	1.2655	-0.2181	0.1255	0.0317	0.1094	-0.0636	60	**0.7039**	-9.2655
		53				6.6634	0.7489	-10.2997	0.0343	0.1183	0.1633	1.5264	-0.2511	0.3523	0.0343	0.1183	-0.0736	60	**0.3366**	-8.5264
		54				6.0644	0.714	-10.2227	0.0366	0.1262	0.1571	1.821	-0.286	0.6303	0.0366	0.1262	-0.0842	60	-0.0644	-7.821
Kenya National Mills Lt	34.75	**23**	22.49	34	0.5	14.2289	0.9894	-4.7666	0.0034	0.0069	0.1008	0.0326	-0.0106	-0.1441	0.0034	0.0069	-0.002	47	**9.7711**	-24.0326
		33				6.3875	0.789	-7.1442	0.0346	0.071	0.1051	1.1277	-0.211	-0.5118	0.0346	0.071	-0.0423	47	**7.6125**	-15.1277
		43				1.9627	0.3828	-5.7384	0.0457	0.0938	0.0567	5.6393	-0.6172	2.9037	0.0457	0.0938	-0.1354	47	**2.0373**	-9.6393
		53				0.4532	0.1214	-2.5325	0.0241	0.0496	0.0188	13.066	-0.8786	8.1195	0.0241	0.0496	-0.218	47	-6.4532	-7.0662
		44				1.7135	0.3469	-5.41	0.0442	0.0907	0.0517	6.2838	-0.6531	3.4331	0.0442	0.0907	-0.1449	47	**1.2865**	-9.2838
		45				1.4919	0.3131	-5.071	0.0424	0.0871	0.0469	6.9558	-0.6869	3.9731	0.0424	0.0871	-0.1541	47	**0.5081**	-8.9558
		46				1.2956	0.2814	-4.7272	0.0404	0.0829	0.0424	7.6531	-0.7186	4.5179	0.0404	0.0829	-0.1631	47	-0.2956	-8.6531
Kenya Oil Co Ltd	71	45	22.49	22	0.5	30.7864	0.9999	-9.0467	0	0.0002	0.201	0.0003	-0.0001	-0.0026	0	0.0002	0	70	-5.7864	-25.0003
		55				21.8774	0.9927	-11.1545	0.0018	0.0102	0.243	0.0278	-0.0073	-0.1006	0.0018	0.0102	-0.0027	70	-6.8774	-15.0278
		65				13.3765	0.9144	-13.3204	0.0142	0.0786	0.2577	0.4632	-0.0856	-0.2567	0.0142	0.0786	-0.0327	70	-8.3765	-5.4632
		75				6.5567	0.673	-13.2574	0.0327	0.1811	0.2061	2.5799	-0.327	1.8161	0.0327	0.1811	-0.129	70	-11.5567	**2.4201**
																		70	70	-70
		66				12.5922	0.898	-13.4737	0.0161	0.0894	0.2558	0.5726	-0.102	-0.209	0.0161	0.0894	-0.0391	70	-8.5922	-4.5726
		67				11.8266	0.8797	-13.6004	0.0181	0.1006	0.2532	0.7007	-0.1203	-0.1348	0.0181	0.1006	-0.0462	70	-8.8266	-3.7007
		68				11.0814	0.8595	-13.6966	0.0202	0.112	0.2497	0.8491	-0.1405	-0.0299	0.0202	0.112	-0.0541	70	-9.0814	-2.8491
		69				10.3582	0.8375	-13.7583	0.0223	0.1234	0.2455	1.0195	-0.1625	0.1093	0.0223	0.1234	-0.0628	70	-9.3582	-2.0195
		70				9.6586	0.8138	-13.7823	0.0243	0.1346	0.2406	1.2135	-0.1862	0.2863	0.0243	0.1346	-0.0722	70	-9.6586	-1.2135
		71				8.9839	0.7883	-13.7655	0.0262	0.1454	0.2349	1.4324	-0.2117	0.5041	0.0262	0.1454	-0.0823	70	-9.9839	-0.4324
		72				8.3354	0.7614	-13.7058	0.0281	0.1556	0.2286	1.6776	-0.2386	0.7648	0.0281	0.1556	-0.0931	70	-10.3354	**0.3224**
KPLC	90	**76**	22.49	47	0.5	24.9318	0.8445	-18.6285	0.008	0.1519	0.2554	2.8486	-0.1555	-3.354	0.008	0.1519	-0.0842	171	**70.0682**	-97.8486

		86				18.7895	0.7393	-20.4539	0.0109	0.2067	0.2388	5.6427	-0.2607	-3.1696	0.0109	0.2067	-0.1455	171	**66.2105**	-90.6427
		96				13.8245	0.6218	-20.8493	0.0127	0.2419	0.2107	9.6141	-0.3782	-1.5552	0.0127	0.2419	-0.2182	171	**61.1755**	-84.6141
		106				9.9696	0.5049	-19.9083	0.0133	0.2539	0.1773	14.696	-0.4951	1.3955	0.0133	0.2539	-0.2963	171	**55.0304**	-79.6957
		116				7.0739	0.3978	-17.9994	0.0129	0.2455	0.1436	20.736	-0.6022	5.3143	0.0129	0.2455	-0.3747	171	**47.9261**	-75.7364
		126				4.9552	0.3058	-15.5631	0.0117	0.2232	0.1128	27.554	-0.6942	9.7604	0.0117	0.2232	-0.4502	171	**40.0448**	-72.5541
		136				3.4368	0.2303	-12.9794	0.0102	0.1934	0.0865	34.972	-0.7697	14.354	0.0102	0.1934	-0.5212	171	**31.5632**	-69.9721
		146				2.3659	0.1708	-10.5145	0.0085	0.1615	0.065	42.838	-0.8292	18.829	0.0085	0.1615	-0.5874	171	**22.6341**	-67.8377
		156				1.6199	0.125	-8.3208	0.0069	0.131	0.0481	51.028	-0.875	23.032	0.0069	0.131	-0.6489	171	**13.3801**	-66.0281
		166				1.105	0.0905	-6.4624	0.0055	0.1038	0.0352	59.45	-0.9095	26.9	0.0055	0.1038	-0.7065	171	**3.895**	-64.4495
		176				0.7519	0.0651	-4.944	0.0042	0.0808	0.0255	68.033	-0.9349	30.429	0.0042	0.0808	-0.7609	171	-5.7519	-63.0329
		167				1.0633	0.0876	-6.2955	0.0053	0.1013	0.0341	60.302	-0.9124	27.268	0.0053	0.1013	-0.7121	171	**2.9367**	-64.3015
		168				1.0232	0.0848	-6.1321	0.0052	0.0988	0.033	61.155	-0.9152	27.633	0.0052	0.0988	-0.7176	171	**1.9768**	-64.1551
		169				0.9846	0.0821	-5.972	0.0051	0.0964	0.032	62.01	-0.9179	27.994	0.0051	0.0964	-0.7231	171	**1.0154**	-64.0101
		170				0.9475	0.0794	-5.8153	0.0049	0.0941	0.031	62.867	-0.9206	28.351	0.0049	0.0941	-0.7286	171	**0.0525**	-63.8666
		171				0.9117	0.0768	-5.6619	0.0048	0.0917	0.03	63.725	-0.9232	28.706	0.0048	0.0917	-0.7341	171	-0.9117	-63.7245
Total Kenya Ltd	94	32	22.49	57	0.5	65.4127	0.9992	-6.5168	0.0001	0.0018	0.1426	0.0093	-0.0008	-0.0854	0.0001	0.0018	-0.0004	84.5	-12.9127	-52.5093
		42				56.559	0.9934	-8.9805	0.0005	0.0123	0.1841	0.092	-0.0066	-0.5393	0.0005	0.0123	-0.0036	84.5	-14.059	-42.592
		52				47.9571	0.9744	-12.0737	0.0016	0.0397	0.2182	0.4265	-0.0256	-1.6227	0.0016	0.0397	-0.0142	84.5	-15.4571	-32.9265
		62				39.8683	0.9349	-15.6087	0.0034	0.0844	0.24	1.2741	-0.0651	-3.148	0.0034	0.0844	-0.037	84.5	-17.3683	-23.7741
		72				32.5421	0.8733	-19.0167	0.0055	0.1381	0.2477	2.8844	-0.1267	-4.5461	0.0055	0.1381	-0.074	84.5	-20.0421	-15.3844
		82				26.1416	0.7937	-21.705	0.0075	0.1896	0.2423	5.4203	-0.2063	-5.2246	0.0075	0.1896	-0.1241	84.5	-23.6416	-7.9203
		92				20.7227	0.7033	-23.3144	0.0091	0.2299	0.2269	8.9377	-0.2967	-4.8243	0.0091	0.2299	-0.1841	84.5	-28.2227	-1.4377
		102				16.2522	0.6094	-23.7711	0.0101	0.2551	0.2052	13.404	-0.3906	-3.2712	0.0101	0.2551	-0.2506	84.5	-33.7522	**4.0963**
		93				20.2341	0.6939	-23.411	0.0093	0.2332	0.225	9.3428	-0.3061	-4.7199	0.0093	0.2332	-0.1906	84.5	-28.7341	-0.8428
		94				19.7549	0.6846	-23.496	0.0094	0.2363	0.223	9.7573	-0.3154	-4.6039	0.0094	0.2363	-0.197	84.5	-29.2549	-0.2573
		95				19.2852	0.6752	-23.5694	0.0095	0.2392	0.2209	10.181	-0.3248	-4.4763	0.0095	0.2392	-0.2036	84.5	-29.7852	**0.3188**
Unga Group Ltd	120	**70**	22.49	39	0.5	57.5173	0.9938	-14.4647	0.0005	0.0149	0.3087	0.0722	-0.0062	-0.3961	0.0005	0.0149	-0.0041	150	**22.4827**	-80.0722
		80				48.8053	0.9781	-17.151	0.0016	0.0444	0.3428	0.2967	-0.0219	-1.0726	0.0016	0.0444	-0.0146	150	**21.1947**	-70.2967
		90				40.4533	0.944	-20.114	0.0034	0.0958	0.3641	0.8811	-0.056	-2.0258	0.0034	0.0958	-0.038	150	**19.5467**	-60.8811
		100				32.7061	0.8862	-22.9362	0.0058	0.1634	0.3682	2.0703	-0.1138	-2.8382	0.0058	0.1634	-0.0786	150	**17.2939**	-52.0703
		110				25.7903	0.8054	-25.0484	0.0083	0.2336	0.3543	4.091	-0.1946	-2.9406	0.0083	0.2336	-0.1372	150	**14.2097**	-44.091
		120				19.856	0.7073	-26.0002	0.0104	0.2917	0.3251	7.093	-0.2927	-1.8826	0.0104	0.2917	-0.2111	150	**10.144**	-37.093
		130				14.9525	0.6008	-25.6298	0.0117	0.3277	0.2857	11.126	-0.3992	0.4976	0.0117	0.3277	-0.2952	150	**5.0475**	-31.126
		140				11.0379	0.4947	-24.0689	0.0121	0.3385	0.2416	16.148	-0.5053	4.0683	0.0121	0.3385	-0.3839	150	-1.0379	-26.1478
		131				14.5179	0.59	-25.523	0.0117	0.3299	0.2814	11.585	-0.41	0.8054	0.0117	0.3299	-0.3039	150	**4.4821**	-30.585
		132				14.0932	0.5793	-25.4044	0.0118	0.3318	0.2771	12.054	-0.4207	1.1249	0.0118	0.3318	-0.3127	150	**3.9068**	-30.0539
		133				13.6782	0.5685	-25.2743	0.0119	0.3335	0.2727	12.533	-0.4315	1.456	0.0119	0.3335	-0.3215	150	**3.3218**	-29.5326
		134				13.2729	0.5578	-25.1331	0.0119	0.3349	0.2683	13.021	-0.4422	1.7983	0.0119	0.3349	-0.3304	150	**2.7271**	-29.0209
		135				12.8771	0.5472	-24.9809	0.012	0.3361	0.2639	13.519	-0.4528	2.1514	0.012	0.3361	-0.3393	150	**2.1229**	-28.5188
		136				12.4908	0.5366	-24.8182	0.012	0.3371	0.2595	14.026	-0.4634	2.5151	0.012	0.3371	-0.3482	150	**1.5092**	-28.0261
		137				12.1139	0.526	-24.6453	0.012	0.3378	0.255	14.543	-0.474	2.889	0.012	0.3378	-0.3571	150	**0.8861**	-27.5428
		138				11.7462	0.5155	-24.4625	0.012	0.3383	0.2506	15.069	-0.4845	3.2727	0.012	0.3383	-0.366	150	**0.2538**	-27.0688
		139				11.3875	0.5051	-24.2703	0.0121	0.3385	0.2461	15.604	-0.4949	3.666	0.0121	0.3385	-0.375	150	-0.3875	-26.6038

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JULY-DECEMBER 1997

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.97*	*Value of European call option*	*Value of European put option*
Brooke Bond	124	89	22.49	14	0.5	44.4659	1	-17.8873	0	0	0.3977	0	0	-0.0001	0	0	0	123	-10.4659	-34
		99				35.5303	0.9997	-19.9016	0.0001	0.0009	0.4422	0.0009	-0.0003	-0.0046	0.0001	0.0009	-0.0002	123	-11.5303	-24.0009
		109				26.6193	0.9936	-21.9435	0.0015	0.0158	0.4829	0.0263	-0.0064	-0.0367	0.0015	0.0158	-0.0041	123	-12.6193	-14.0263
		119				17.9522	0.9453	-23.6846	0.009	0.0971	0.4963	0.2956	-0.0547	0.232	0.009	0.0971	-0.0354	123	-13.9522	-4.2956
		129				10.3078	0.7841	-23.1438	0.0239	0.2568	0.4346	1.5876	-0.2159	2.7827	0.0239	0.2568	-0.1418	123	-16.3078	4.4124
		123				14.7067	0.8975	-23.9145	0.0146	0.1567	0.4829	0.6247	-0.1025	0.806	0.0146	0.1567	-0.0667	123	-14.7067	-0.6247
		124				13.9291	0.8821	-23.8918	0.0161	0.1733	0.4772	0.7407	-0.1179	1.0298	0.0161	0.1733	-0.0768	123	-14.9291	**0.2593**
Eaagads Ltd	26	**16**	22.49	51	0.5	11.8408	0.967	-3.6817	0.0079	0.0135	0.0665	0.139	-0.033	-0.466	0.0079	0.0135	-0.005	42	**14.1592**	-26.139
		26				5.073	0.6887	-6.2001	0.0377	0.065	0.0642	2.3077	-0.3113	-0.9746	0.0377	0.065	-0.052	42	**10.927**	-18.3077
		36				1.7709	0.3408	-5.0333	0.0391	0.0674	0.0355	7.942	-0.6592	2.202	0.0391	0.0674	-0.1254	42	**4.2291**	-13.942
		46				0.5652	0.1379	-2.7442	0.0235	0.0405	0.0151	15.6728	-0.8621	6.5009	0.0235	0.0405	-0.1904	42	**-4.5652**	-11.6728
		40				1.1283	0.2412	-4.0795	0.0332	0.0573	0.0257	10.874	-0.7588	3.9597	0.0332	0.0573	-0.153	42	**0.8717**	-12.874
		41				1.0065	0.2204	-3.8414	0.0316	0.0545	0.0236	11.6458	-0.7796	4.3988	0.0316	0.0545	-0.1596	42	-0.0065	-12.6458
George Williamson	70	**27**	22.49	68	0.5	45.962	0.993	-5.9541	0.0006	0.0097	0.1177	0.0904	-0.007	-0.5276	0.0006	0.0097	-0.0029	86	**13.038**	-59.0904
		37				37.5136	0.9641	-9.3969	0.0023	0.0391	0.1499	0.5783	-0.0359	-1.9607	0.0023	0.0391	-0.0155	86	**11.4864**	-49.5783
		47				29.8896	0.9037	-13.2518	0.0051	0.0845	0.1668	1.8907	-0.0963	-3.8057	0.0051	0.0845	-0.0432	86	**9.1104**	-40.8907
		57				23.372	0.8164	-16.5389	0.0079	0.1315	0.1689	4.3096	-0.1836	-5.0831	0.0079	0.1315	-0.0858	86	**5.628**	-33.3096
		67				18.0323	0.7141	-18.6308	0.0101	0.1683	0.1598	7.9064	-0.2859	-5.1651	0.0101	0.1683	-0.1396	86	**0.9677**	-26.9064
		77				13.7895	0.6087	-19.408	0.0114	0.1901	0.1441	12.5999	-0.3913	-3.9325	0.0114	0.1901	-0.1999	86	-4.7895	-21.5999
		157				1.5453	0.114	-7.9388	0.0057	0.0955	0.0322	71.8471	-0.886	23.615	0.0057	0.0955	-0.6693	86	-72.5453	-0.8471
		167				1.1874	0.0911	-6.6822	0.0049	0.0811	0.0259	80.4256	-0.9089	26.8815	0.0049	0.0811	-0.7202	86	-82.1874	0.5744
		68				17.5609	0.7035	-18.7661	0.0103	0.1712	0.1584	8.3286	-0.2965	-5.0994	0.0103	0.1712	-0.1454	86	**0.4391**	-26.3286
		69				17.1004	0.6929	-18.888	0.0104	0.1739	0.157	8.7617	-0.3071	-5.0204	0.0104	0.1739	-0.1513	86	-0.1004	-25.7617
		162				1.354	0.1019	-7.2881	0.0053	0.0881	0.0289	76.124	-0.8981	25.2707	0.0053	0.0881	-0.695	86	-77.354	-0.124
		163				1.3188	0.0996	-7.1633	0.0052	0.0866	0.0283	76.9825	-0.9004	25.5964	0.0052	0.0866	-0.7	86	-78.3188	**0.0175**
Kakuzi Ltd	102	47	22.49	51	0.5	60.0516	0.9959	-9.7884	0.0003	0.0088	0.2076	0.0527	-0.0041	-0.3423	0.0003	0.0088	-0.0024	96	-11.0516	-49.0527
		57				51.3279	0.9824	-12.5905	0.0012	0.0313	0.2444	0.2655	-0.0176	-1.1346	0.0012	0.0313	-0.0103	96	-12.3279	-39.2655
		67				42.9856	0.9513	-15.8701	0.0027	0.0728	0.2702	0.8596	-0.0487	-2.4044	0.0027	0.0728	-0.0291	96	-13.9856	-29.8596
		77				35.2756	0.8983	-19.2092	0.0048	0.1282	0.2817	2.086	-0.1017	-3.7337	0.0048	0.1282	-0.0623	96	-16.2756	-21.086
		87				28.4052	0.8246	-22.023	0.007	0.1862	0.2785	4.152	-0.1754	-4.5377	0.007	0.1862	-0.1102	96	-19.4052	-13.152
		97				22.491	0.7361	-23.8505	0.0089	0.2357	0.263	7.1742	-0.2639	-4.3555	0.0089	0.2357	-0.1704	96	-23.491	-6.1742
		107				17.5528	0.6404	-24.4988	0.0102	0.2697	0.2388	11.1725	-0.3596	-2.994	0.0102	0.2697	-0.2393	96	-28.5528	-0.1725
		117				13.5347	0.5445	-24.0292	0.0108	0.2859	0.21	16.0908	-0.4555	-0.5145	0.0108	0.2859	-0.3128	96	-34.5347	4.9092
		108				17.111	0.6307	-24.4994	0.0103	0.2722	0.2361	11.6243	-0.3693	-2.7935	0.0103	0.2722	-0.2465	96	-29.111	**0.3757**
Kapchorua Tea Co	70	70	22.49	0	0.5	7.4451	1	-14.0686	0	0	0.3128	0	0	0	0	0	0	70	-7.4451	**0**
		71				6.5514	1	-14.2696	0	0	0.3172	0	0	0	0	0	0	70	-7.5514	**1**
								%-150.0477												
Limuru Tea Co	1000	721	22.49	31	0.5	357.15	0.9828	%-150.0477	0.0002	0.3014	3.1282	1.466	-0.0172	-5.1411	0.0002	0.3014	-0.0934	750	-328.1501	-30.466
		731				348.492	0.9799	%-152.6580	0.0002	0.3436	3.1571	1.7445	-0.0201	-5.7416	0.0002	0.3436	-0.1091	750	-329.4922	-20.7445
		741				339.876	0.9767	%-155.2954	0.0003	0.3894	3.1842	2.0646	-0.0233	-6.3692	0.0003	0.3894	-0.1268	750	-330.8758	-11.0646
		751				331.305	0.9731	%-157.9548	0.0003	0.439	3.2091	2.4304	-0.0269	-7.0188	0.0003	0.439	-0.1465	750	-332.3052	**1.0269**
		750				332.16	0.9735	%-157.6881	0.0003	0.4339	3.2067	2.3916	-0.0265	-6.953	0.0003	0.4339	-0.1444	750	-332.1601	-2.3916

Rea Vipingo Ltd	9.3	**7**	22.49	27	0.5	3.0545	0.9851	-1.4403	0.0212	0.0025	0.0305	0.01	-0.0149	-0.0335	0.0212	0.0025	-0.0007	9	-1.0545	-2.01
		15				0.0226	0.0344	-0.2023	0.0429	0.005	0.0015	4.1272	-0.9656	2.8124	0.0429	0.005	-0.0655	9	-6.0226	**1.8728**
		9				1.4692	0.8041	-1.8423	0.1557	0.0182	0.03	0.212	-0.1959	-0.0335	0.1557	0.0182	-0.0102	9	-1.4692	-0.212
		10				0.8903	0.6196	-1.7719	0.2145	0.025	0.0244	0.5267	-0.3804	0.2379	0.2145	0.025	-0.0203	9	-1.8903	**0.4733**
Sasini Tea & Coffee	85	**66**	22.49	38	0.5	26.7761	0.9325	-14.7865	0.0057	0.0785	0.2624	0.7565	-0.0675	-1.5218	0.0057	0.0785	-0.0325	94	**1.2239**	-28.7565
		76				19.3771	0.8338	-17.2775	0.0109	0.1499	0.2575	2.2939	-0.1662	-2.0031	0.0109	0.1499	-0.0821	94	-1.3771	-20.2939
		86				13.3191	0.6947	-18.2887	0.0153	0.2106	0.2287	5.1724	-0.3053	-1.0044	0.0153	0.2106	-0.1556	94	-5.3191	-13.1724
		96				8.7371	0.5398	-17.4204	0.0174	0.2386	0.1857	9.5267	-0.4602	1.8736	0.0174	0.2386	-0.2432	94	-10.7371	-7.5267
		106				5.5057	0.394	-15.0824	0.0168	0.2313	0.1399	15.2318	-0.606	6.2215	0.0168	0.2313	-0.3337	94	-17.5057	-3.2318
		116				3.356	0.2728	-12.0511	0.0146	0.1998	0.0992	22.0185	-0.7272	11.2626	0.0146	0.1998	-0.4191	94	-25.356	-0.0185
		126				1.9916	0.1809	-9.0205	0.0115	0.1582	0.0669	29.5905	-0.8191	16.303	0.0115	0.1582	-0.4961	94	-33.9916	2.4095
		71				22.929	0.8893	-16.1581	0.0083	0.1136	0.2633	1.3776	-0.1107	-1.8885	0.0083	0.1136	-0.054	94	**0.071**	-24.3776
		72				22.1933	0.8791	-16.4069	0.0088	0.1209	0.2627	1.5356	-0.1209	-1.9363	0.0088	0.1209	-0.0591	94	-0.1933	-23.5356
		117				3.1889	0.2623	-11.7388	0.0143	0.1958	0.0955	22.745	-0.7377	11.7759	0.0143	0.1958	-0.4273	94	-26.1889	0.255

SIMULATION OF OPTION VALUES USING BOPSCOL
COMMERCIAL AND SERVICES SECTOR-JUNE TO DECEMBER 1997

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.97*	*Value of European call option*	*Value of European put option*
A Baumann & Co	26	9	22.49	57	0.5	17.96	0.9991	-1.8356	0.0003	0.0006	0.0401	0.003	-0.0009	-0.0268	0.0003	0.0006	-0.0001	16	-10.9602	-7.003
		19				9.6445	0.8959	-4.963	0.0172	0.0332	0.0682	0.6237	-0.1041	-1.1444	0.0172	0.0332	-0.0166	16	-12.6445	2.3763
		14				13.587	0.9781	-3.2111	0.005	0.0096	0.0592	0.0984	-0.0219	-0.3974	0.005	0.0096	-0.0033	16	-11.5874	-2.0984
		15				12.751	0.9675	-3.5516	0.0069	0.0134	0.062	0.1553	-0.0325	-0.5369	0.0069	0.0134	-0.005	16	-11.7507	-1.1553
		16				11.935	0.954	-3.9051	0.0092	0.0177	0.0643	0.233	-0.046	-0.6894	0.0092	0.0177	-0.0071	16	-11.9347	-0.233
		17				11.143	0.9376	-4.2639	0.0117	0.0226	0.0662	0.335	-0.0624	-0.8473	0.0117	0.0226	-0.0098	16	-12.143	**0.665**
CMC Holdings Ltd	82.5	51	22.49	38	0.5	37.002	0.9904	-10.623	0.0012	0.015	0.2235	0.078	-0.0096	-0.3734	0.0012	0.015	-0.0043	80	-8.0023	-29.078
		61				28.464	0.9532	-13.453	0.0044	0.0571	0.2509	0.4763	-0.0468	-1.1934	0.0044	0.0571	-0.0217	80	-9.4641	-19.4763
		71				20.733	0.8668	-16.189	0.0097	0.1255	0.2539	1.6817	-0.1332	-1.919	0.0097	0.1255	-0.0633	80	-11.7331	-10.6817
		81				14.288	0.7327	-17.674	0.0148	0.1919	0.2308	4.1734	-0.2673	-1.3948	0.0148	0.1919	-0.1311	80	-15.2884	-3.1734
		91				9.3559	0.5745	-17.245	0.0177	0.2287	0.1902	8.1773	-0.4255	1.0446	0.0177	0.2287	-0.2164	80	-20.3559	2.8227
		85				12.132	0.6707	-17.737	0.0163	0.2111	0.216	5.5917	-0.3293	-0.6534	0.0163	0.2111	-0.1638	80	-17.1321	-0.5917
		86				11.632	0.6548	-17.702	0.0166	0.215	0.2119	5.9848	-0.3452	-0.418	0.0166	0.215	-0.1723	80	-17.6316	**0.0152**
Car & General	17	11	22.49	23	0.5	7.1701	0.9997	-2.2125	0.0004	0.0001	0.0491	0.0002	-0.0003	-0.0018	0.0004	0.0001	0	16	-2.1701	-5.0002
		21				0.4829	0.2993	-1.9958	0.1256	0.0417	0.023	2.2494	-0.7007	2.2248	0.1256	0.0417	-0.0708	16	-5.4829	2.7506
		16				2.888	0.874	-3.2644	0.0749	0.0249	0.0599	0.1863	-0.126	-0.0487	0.0749	0.0249	-0.0116	16	-2.888	-0.1863
		17				2.1863	0.7802	-3.3094	0.107	0.0356	0.0554	0.3782	-0.2198	0.1073	0.107	0.0356	-0.0206	16	-3.1863	**0.6218**
Express Kenya Ltd	71	50	22.49	19	0.5	26.318	0.9998	-10.053	0.0001	0.0004	0.2233	0.0005	-0.0002	-0.0043	0.0001	0.0004	-0.0001	59	-17.3184	-9.0005
		60				17.437	0.9845	-12.171	0.0041	0.0196	0.2623	0.055	-0.0155	-0.1117	0.0041	0.0196	-0.0058	59	-18.4365	**0.945**
		59				18.314	0.9888	-11.951	0.0031	0.0148	0.2594	0.0384	-0.0112	-0.0934	0.0031	0.0148	-0.0042	59	-18.3135	-0.0384
Kenya Airways	8.2	7	22.49	13	0.5	1.9448	0.9986	-1.4077	0.006	0.0003	0.0312	0.0003	-0.0014	-0.0008	0.006	0.0003	-0.0001	8	-0.9448	-1.0003
		8				1.0719	0.938	-1.5809	0.1622	0.0071	0.0331	0.021	-0.062	0.027	0.1622	0.0071	-0.0026	8	-1.0719	-0.021
		9				0.3829	0.6012	-1.3137	0.5121	0.0224	0.0227	0.2257	-0.3988	0.4952	0.5121	0.0224	-0.0175	8	-1.3829	**0.7743**
Lonhro Motors	82.5	8	22.49	120	0.5	75.362	0.9995	-1.7146	0	0.001	0.0355	0.011	-0.0005	-0.1067	0	0.001	-0.0002	39	-44.3618	-31.011
		18				66.712	0.9906	-5.1384	0.0004	0.0147	0.0751	0.2972	-0.0094	-1.5207	0.0004	0.0147	-0.0053	39	-45.7116	-21.2972
		28				58.787	0.9664	-9.9408	0.0011	0.0436	0.1047	1.309	-0.0336	-4.3133	0.0011	0.0436	-0.0204	39	-47.7871	-12.309
		38				51.774	0.9293	-15.072	0.0019	0.079	0.1245	3.2324	-0.0707	-7.4351	0.0019	0.079	-0.0453	39	-50.774	-4.2324
		48				45.667	0.884	-19.805	0.0028	0.114	0.1363	6.0613	-0.116	-10.158	0.0028	0.114	-0.0782	39	-54.6665	2.9387
		43				48.611	0.9074	-17.517	0.0024	0.0968	0.1312	4.5379	-0.0926	-8.8744	0.0024	0.0968	-0.0609	39	-52.6113	-0.5379
		44				48.005	0.9028	-17.988	0.0025	0.1003	0.1324	4.8255	-0.0972	-9.1448	0.0025	0.1003	-0.0642	39	-53.0052	**0.1745**
Marshalls EA Ltd	77	10	22.49	118	0.5	68.095	0.9986	-2.2653	0.0001	0.0024	0.044	0.0316	-0.0014	-0.2555	0.0001	0.0024	-0.0007	41	-37.0952	-31.0316
		20				59.595	0.9849	-6.0991	0.0006	0.0207	0.0812	0.4683	-0.0151	-2.0795	0.0006	0.0207	-0.0082	41	-38.5954	-21.4683
		30				51.944	0.9537	-11.066	0.0015	0.0528	0.1074	1.7531	-0.0463	-5.0363	0.0015	0.0528	-0.0266	41	-40.9438	-12.7531
		40				45.273	0.9094	-16.053	0.0025	0.0889	0.1237	4.0189	-0.0906	-8.0141	0.0025	0.0889	-0.055	41	-44.2733	-5.0189
		50				39.54	0.8576	-20.426	0.0035	0.1226	0.1325	7.2218	-0.1424	-10.377	0.0035	0.1226	-0.0909	41	-48.5397	1.7782
		49				40.074	0.8629	-20.026	0.0034	0.1194	0.1319	6.8622	-0.1371	-10.178	0.0034	0.1194	-0.0871	41	-48.0737	1.1378

		48				40.616	0.8683	-19.616	0.0033	0.1162	0.1312	6.511	-0.1317	-9.9691	0.0033	0.1162	-0.0833	41	-47.6162	**0.489**
		47				41.167	0.8736	-19.198	0.0032	0.113	0.1305	6.1684	-0.1264	-9.7523	0.0032	0.113	-0.0795	41	-47.1672	-0.1684
Nation Media Grou	116	55	22.49	56	0.5	67.007	0.991	-11.898	0.0005	0.0199	0.2398	0.1572	-0.009	-0.8445	0.0005	0.0199	-0.006	131	8.9931	-76.1572
		65				58.436	0.9741	-15.036	0.0013	0.0494	0.2728	0.5223	-0.0259	-1.9726	0.0013	0.0494	-0.0176	131	7.5645	-66.5223
		75				50.281	0.9433	-18.534	0.0025	0.0934	0.2957	1.3041	-0.0567	-3.4604	0.0025	0.0934	-0.0394	131	5.719	-57.3041
		85				42.716	0.8975	-22.017	0.0039	0.1466	0.3069	2.6755	-0.1025	-4.9332	0.0039	0.1466	-0.0729	131	3.2841	-48.6755
		95				35.87	0.838	-25.062	0.0053	0.2012	0.3067	4.7664	-0.162	-5.9687	0.0053	0.2012	-0.1178	131	**0.1296**	-40.7664
		105				29.816	0.7684	-27.342	0.0066	0.25	0.2966	7.6487	-0.2316	-6.2395	0.0066	0.25	-0.1726	131	-3.8163	-33.6487
		185				5.4939	0.243	-19.478	0.0068	0.2567	0.1135	54.818	-0.757	17.703	0.0068	0.2567	-0.7132	131	-59.4939	-0.8177
		195				4.3926	0.2033	-17.305	0.0062	0.2319	0.096	62.653	-0.7967	21.886	0.0062	0.2319	-0.7753	131	-68.3926	1.3472
		205				3.5099	0.1695	-15.236	0.0055	0.2072	0.0808	70.707	-0.8305	25.965	0.0055	0.2072	-0.8352	131	-77.5099	3.2935
		215				2.8039	0.1409	-13.313	0.0049	0.1834	0.0677	78.937	-0.8591	29.898	0.0049	0.1834	-0.893	131	-86.8039	5.0631
		225				2.24	0.1168	-11.558	0.0043	0.161	0.0565	87.31	-0.8832	33.662	0.0043	0.161	-0.9488	131	-96.24	6.6905
		235				1.7902	0.0966	-9.9806	0.0037	0.1404	0.0471	95.796	-0.9034	37.25	0.0037	0.1404	-1.0029	131	-105.7902	8.2039
		245				1.4315	0.0798	-8.579	0.0032	0.1218	0.0391	104.37	-0.9202	40.661	0.0032	0.1218	-1.0556	131	-115.4315	9.6262
		255				1.1456	0.0659	-7.3461	0.0028	0.1051	0.0325	113.02	-0.9341	43.904	0.0028	0.1051	-1.1069	131	-125.1456	10.9757
		96				35.229	0.8314	-25.328	0.0055	0.2064	0.3061	5.0184	-0.1686	-6.0343	0.0055	0.2064	-0.1229	131	-0.2288	-40.0184
		188				5.1378	0.2304	-18.819	0.0066	0.2493	0.108	57.143	-0.7696	18.966	0.0066	0.2493	-0.7321	131	-62.1378	-0.1425
		189				5.0242	0.2264	-18.6	0.0066	0.2469	0.1062	57.923	-0.7736	19.385	0.0066	0.2469	-0.7383	131	-63.0242	**0.0775**
		190				4.913	0.2224	-18.382	0.0065	0.2444	0.1044	58.705	-0.7776	19.804	0.0065	0.2444	-0.7445	131	-63.913	0.295
Pearl Drycleaners	10.25	8	22.49	18	0.5	3.1515	0.9983	-1.6109	0.0041	0.0004	0.0357	0.0007	-0.0017	-0.0031	0.0041	0.0004	-0.0001	11	-0.1515	-3.0007
		14				0.0397	0.0716	-0.3359	0.1042	0.0099	0.0035	2.2507	-0.9284	2.4778	0.1042	0.0099	-0.0591	11	-3.0397	0.7493
		11				0.7796	0.6666	-1.8455	0.2774	0.0265	0.0304	0.3097	-0.3334	0.3653	0.2774	0.0265	-0.0187	11	-0.7796	-0.3097
		12				0.348	0.4001	-1.3551	0.2947	0.0281	0.0189	0.7717	-0.5999	1.0567	0.2947	0.0281	-0.0348	11	-1.348	**0.2283**
Standard Newspap	25	100	22.49	70	0.5	0.0363	0.01	-0.3781	0.0022	0.0047	0.0011	64.401	-0.99	19.72	0.0022	0.0047	-0.4458	53	-47.0363	-17.4005
		110				0.0204	0.0059	-0.2355	0.0014	0.003	0.0006	73.321	-0.9941	21.872	0.0014	0.003	-0.4909	53	-57.0204	-16.321
		120				0.0117	0.0035	-0.1481	0.0009	0.0019	0.0004	82.249	-0.9965	23.97	0.0009	0.0019	-0.5358	53	-67.0117	-15.2487
		130				0.0068	0.0021	-0.0941	0.0005	0.0012	0.0002	91.18	-0.9979	26.033	0.0005	0.0012	-0.5806	53	-77.0068	-14.1803
		140				0.0041	0.0013	-0.0604	0.0004	0.0008	0.0001	100.11	-0.9987	28.077	0.0004	0.0008	-0.6254	53	-87.0041	-13.114
		150				0.0025	0.0008	-0.0392	0.0002	0.0005	0.0001	109.05	-0.9992	30.108	0.0002	0.0005	-0.6701	53	-97.0025	-12.0488
		160				0.0015	0.0005	-0.0257	0.0002	0.0003	0.0001	117.98	-0.9995	32.131	0.0002	0.0003	-0.7149	53	-107.0015	-10.9843
		170				0.001	0.0003	-0.017	0.0001	0.0002	0	126.92	-0.9997	34.15	0.0001	0.0002	-0.7596	53	-117.001	-9.9201
		180				0.0006	0.0002	-0.0114	0.0001	0.0001	0	135.86	-0.9998	36.165	0.0001	0.0001	-0.8043	53	-127.0006	-8.8562
		190				0.0004	0.0001	-0.0077	0	0.0001	0	144.79	-0.9999	38.179	0	0.0001	-0.8489	53	-137.0004	-7.7924
		200				0.0003	0.0001	-0.0053	0	0.0001	0	153.73	-0.9999	40.191	0	0.0001	-0.8936	53	-147.0003	-6.7287
		210				0.0002	0.0001	-0.0036	0	0	0	162.67	-0.9999	42.202	0	0	-0.9383	53	-157.0002	-5.665
		220				0.0001	0	-0.0025	0	0	0	171.6	-1	44.213	0	0	-0.983	53	-167.0001	-4.6014
		230				0.0001	0	-0.0018	0	0	0	180.54	-1	46.224	0	0	-1.0277	53	-177.0001	-3.5378
		240				0.0001	0	-0.0012	0	0	0	189.47	-1	48.234	0	0	-1.0724	53	-187.0001	-2.4741
		250				0	0	-0.0009	0	0	0	198.41	-1	50.244	0	0	-1.1171	53	-197	-1.4105
		260				0	0	-0.0006	0	0	0	207.35	-1	52.254	0	0	-1.1617	53	-207	-0.347
		270				0	0	-0.0005	0	0	0	216.28	-1	54.264	0	0	-1.2064	53	-217	0.7166
		263				0	0	-0.0006	0	0	0	210.03	-1	52.857	0	0	-1.1751	53	-210	-0.0279
		264				0	0	-0.0006	0	0	0	210.92	-1	53.058	0	0	-1.1796	53	-211	**0.0785**
		265				0	0	-0.0005	0	0	0	211.82	-1	53.259	0	0	-1.1841	53	-212	0.1848
Uchumi Supermark	40	21	22.49	45	0.5	21.259	0.9944	-4.3677	0.0013	0.0045	0.0926	0.025	-0.0056	-0.1471	0.0013	0.0045	-0.0012	39	-3.2586	-18.025

31	12.944	0.9055	-7.3778	0.0132	0.0476	0.1164	0.6465	-0.0945	-1.1474	0.0132	0.0476	-0.0221	39	-4.9436	-8.6465
41	6.7057	0.6682	-9.1224	0.0285	0.1027	0.1001	3.345	-0.3318	-0.8822	0.0285	0.1027	-0.0831	39	-8.7057	-1.345
51	3.0649	0.4009	-7.8375	0.0304	0.1093	0.0649	8.6407	-0.5991	2.4125	0.0304	0.1093	-0.163	39	-15.0649	3.3593
42	6.2308	0.6403	-9.119	0.0294	0.1058	0.0969	3.7638	-0.3597	-0.6779	0.0294	0.1058	-0.0908	39	-9.2308	-0.7638
43	5.7826	0.6123	-9.0827	0.0301	0.1083	0.0935	4.2093	-0.3877	-0.4405	0.0301	0.1083	-0.0986	39	-9.7826	-0.2093
44	5.3605	0.5843	-9.0148	0.0306	0.1103	0.0901	4.6807	-0.4157	-0.1717	0.0306	0.1103	-0.1065	39	-10.3605	**0.3193**

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JULY-DECEMBER 1997

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.97*	*Value of European call option*	*Value of European put option*
Barclays Bank	110	90	22.5	17	0.5	29.589	0.9961	-18.1407	0.0009	0.0089	0.3999	0.0163	-0.0039	-0.0525	0.0009	0.0089	-0.0022	115	-4.5885	-25.0163
		100				20.839	0.9631	-20.2065	0.0061	0.0627	0.4255	0.2031	-0.0369	-0.1085	0.0061	0.0627	-0.0213	115	-5.8389	-15.2031
		110				12.874	0.8403	-21.1058	0.0184	0.189	0.3978	1.1745	-0.1597	1.002	0.0184	0.189	-0.0937	115	-7.8739	-6.1745
		120				6.7032	0.6071	-18.5951	0.0291	0.2991	0.3004	3.9403	-0.3929	5.5226	0.0291	0.2991	-0.2358	115	-11.7032	1.0597
		119				7.2161	0.6336	-19.0278	0.0285	0.2927	0.3124	3.5595	-0.3664	4.8888	0.0285	0.2927	-0.2193	115	-11.2161	**0.4405**
		118				7.7532	0.6597	-19.4225	0.0277	0.2851	0.324	7.7532	-0.3403	4.2931	0.0277	0.2851	-0.2032	115	-10.7532	-4.7532
City Trust Ltd	35.75	30	22.5	14	0.5	8.9424	0.9984	-6.0344	0.0014	0.0013	0.1338	0.0016	-0.0016	-0.005	0.0014	0.0013	-0.0003	34	-4.9424	-4.0016
		40				1.4134	0.5202	-5.2749	0.1126	0.1007	0.0859	1.4091	-0.4798	2.7643	0.1126	0.1007	-0.0928	34	-7.4134	4.5909
		35				4.6078	0.9192	-6.8843	0.0423	0.0379	0.1413	0.1352	-0.0808	0.15	0.0423	0.0379	-0.0151	34	-5.6078	**0.8648**
		34				5.4346	0.9547	-6.791	0.0269	0.0241	0.1435	0.0684	-0.0453	0.0423	0.0269	0.0241	-0.0084	34	-5.4346	-0.0684
CFC Bank	26	13	22.5	38	0.5	14.384	0.9991	-2.6279	0.0004	0.0005	0.058	0.0018	-0.0009	-0.0152	0.0004	0.0005	-0.0001	18	-9.3844	-5.0018
		23				6.0959	0.8435	-5.2366	0.0343	0.0441	0.0792	0.6496	-0.1565	-0.6141	0.0343	0.0441	-0.0236	18	-11.0959	4.3504
		18				9.9949	0.9727	-3.8797	0.009	0.0116	0.0765	0.0805	-0.0273	-0.2621	0.009	0.0116	-0.004	18	-9.9949	-0.0805
		19				9.1556	0.9573	-4.1734	0.013	0.0167	0.0787	0.1348	-0.0427	-0.3548	0.013	0.0167	-0.0062	18	-10.1556	**0.8652**
Diamond Trust Bank	30.25	17	22.5	25	0.5	15.058	1	-3.4172	0	0	0.076	0	0	-0.0005	0	0	0	22	-10.0581	-5
		24				8.8467	0.979	-4.9405	0.0094	0.0108	0.1038	0.0441	-0.021	-0.117	0.0094	0.0108	-0.0034	22	-10.8467	1.9559
		20				12.379	0.9989	-4.0313	0.0007	0.0008	0.0892	0.0017	-0.0011	-0.0117	0.0007	0.0008	-0.0002	22	-10.3789	-2.0017
		21				11.488	0.9974	-4.2452	0.0015	0.0017	0.0934	0.0044	-0.0026	-0.0247	0.0015	0.0017	-0.0004	22	-10.488	-1.0044
		22				10.6	0.9942	-4.4678	0.0031	0.0035	0.0974	0.0104	-0.0058	-0.0462	0.0031	0.0035	-0.0009	22	-10.6003	-0.0104
		23				9.7186	0.9885	-4.7001	0.0056	0.0064	0.1009	0.0223	-0.0115	-0.0775	0.0056	0.0064	-0.0018	22	-10.7186	**0.9777**
Housing Finance Co of Kenya	23.5	17	22.5	14	0.5	8.3081	1	-3.4167	0	0	0.076	0	0	0	0	0	0	19	-6.3081	-2
		26				1.0612	0.5652	-3.6642	0.1692	0.0654	0.0611	0.7959	-0.4348	1.5613	0.1692	0.0654	-0.0551	19	-8.0612	6.2041
		18				7.4145	0.9999	-3.6179	0.0001	0	0.0804	0	-0.0001	-0.0002	0.0001	0	0	19	-6.4145	-1
		19				6.5211	0.9996	-3.8199	0.0007	0.0003	0.0848	0.0003	-0.0004	-0.0013	0.0007	0.0003	-0.0001	19	-6.5211	-0.0003
		20				5.6289	0.9976	-4.024	0.0033	0.0013	0.0891	0.0017	-0.0024	-0.0044	0.0033	0.0013	-0.0003	19	-6.6289	**0.9983**
ICDC Investments Co Ltd	50	14	22.5	76	0.5	37.51	0.9978	-2.9707	0.0003	0.0025	0.0619	0.0205	-0.0022	-0.157	0.0003	0.0025	-0.0007	35	-16.5095	-21.0205
		24				28.975	0.9674	-6.3208	0.0027	0.0258	0.097	0.4224	-0.0326	-1.4972	0.0027	0.0258	-0.0103	35	-17.975	-11.4224
		34				21.574	0.8841	-10.3348	0.0073	0.069	0.1131	1.9578	-0.1159	-3.5015	0.0073	0.069	-0.0388	35	-20.574	-2.9578
		44				15.703	0.7629	-13.3445	0.0115	0.1092	0.1122	5.0236	-0.2371	-4.5014	0.0115	0.1092	-0.0844	35	-24.7033	3.9764
		39				18.443	0.8265	-12.0352	0.0095	0.0907	0.1144	3.2955	-0.1735	-4.197	0.0095	0.0907	-0.0599	35	-22.4434	0.7045
		38				19.038	0.8386	-11.7239	0.0091	0.0865	0.1145	2.9964	-0.1614	-4.0866	0.0091	0.0865	-0.0553	35	-22.038	**0.0036**
		37				19.648	0.8504	-11.3973	0.0087	0.0823	0.1144	2.713	-0.1496	-3.9611	0.0087	0.0823	-0.051	35	-21.6482	-0.713
Jubilee Insurance Co Ltd	41.5	27	22.5	28	0.5	17.378	0.9977	-5.4624	0.0009	0.0021	0.1201	0.0058	-0.0023	-0.0359	0.0009	0.0021	-0.0005	35	-9.3775	-8.0058
		37				8.8914	0.8937	-7.8489	0.0223	0.0538	0.141	0.4561	-0.1063	-0.4127	0.0223	0.0538	-0.0243	35	-10.8914	1.5439
		36				9.667	0.917	-7.6405	0.0186	0.0449	0.1419	0.3381	-0.083	-0.4052	0.0186	0.0449	-0.0189	35	-10.667	**0.6619**
		35				10.467	0.9367	-7.4091	0.0151	0.0365	0.142	0.2448	-0.0633	-0.3748	0.0151	0.0365	-0.0144	35	-10.4673	-0.2448

KCB Ltd	115	67	22.5	34	0.5	55.146	0.9977	-13.6002	0.0003	0.0058	0.298	0.02	-0.0023	-0.1345	0.0003	0.0058	-0.0014	77	-45.146	-10.02
		77				46.314	0.988	-16.0015	0.0011	0.0254	0.3365	0.1244	-0.012	-0.526	0.0011	0.0254	-0.0075	77	-46.3139	-0.1244
		87				37.745	0.9598	-18.7269	0.0031	0.0703	0.3632	0.4914	-0.0402	-1.2417	0.0031	0.0703	-0.0256	77	-47.7446	9.5086
		78				45.441	0.9862	-16.2616	0.0013	0.0287	0.3399	0.1453	-0.0138	-0.5852	0.0013	0.0287	-0.0087	77	-46.4412	**0.8547**
National Bank Ltd	15.2	9	22.5	31	0.5	7.1585	0.9987	-1.8183	0.0013	0.0005	0.0401	0.0013	-0.0013	-0.0095	0.0013	0.0005	-0.0001	13	-3.1585	-4.0013
		21				0.3305	0.1971	-1.5242	0.0833	0.0298	0.0133	3.8969	-0.8029	2.6964	0.0833	0.0298	-0.0805	13	-8.3305	4.1031
		14				2.9981	0.8408	-3.008	0.0728	0.0261	0.0489	0.3091	-0.1592	-0.1943	0.0728	0.0261	-0.0136	13	-3.9981	**0.6909**
		13				3.7368	0.9092	-2.8123	0.0491	0.0176	0.0504	0.1542	-0.0908	-0.1996	0.0491	0.0176	-0.0077	13	-3.7368	-0.1542
NIC Bank Ltd	60	43	22.5	24	0.5	21.584	0.9966	-8.6975	0.001	0.0043	0.1911	0.011	-0.0034	-0.0553	0.001	0.0043	-0.0011	50	-14.5843	-7.011
		53				12.973	0.9304	-10.9985	0.0131	0.0567	0.2142	0.3356	-0.0696	-0.3466	0.0131	0.0567	-0.0226	50	-15.9725	2.6644
		48				17.183	0.9804	-9.8497	0.0047	0.0202	0.2082	0.0774	-0.0196	-0.2026	0.0047	0.0202	-0.0063	50	-15.1826	-2.0774
		49				16.319	0.9739	-10.0889	0.006	0.0257	0.2106	0.1074	-0.0261	-0.2408	0.006	0.0257	-0.0084	50	-15.319	-1.1074
		50				15.464	0.9658	-10.3268	0.0075	0.0322	0.2124	0.1464	-0.0342	-0.2778	0.0075	0.0322	-0.011	50	-15.4643	-0.1464
		51				14.62	0.9559	-10.5603	0.0092	0.0396	0.2137	0.1961	-0.0441	-0.3103	0.0092	0.0396	-0.0142	50	-15.6203	**0.8039**
Pan Africa Ins Co	63	35	22.5	34	0.5	31.728	0.9988	-7.0767	0.0003	0.0018	0.156	0.0055	-0.0012	-0.0424	0.0003	0.0018	-0.0004	42	-24.728	-7.0055
		45				22.931	0.9766	-9.5179	0.0037	0.0247	0.193	0.1448	-0.0234	-0.4738	0.0037	0.0247	-0.0081	42	-25.9309	2.8552
		40				27.289	0.9934	-8.2184	0.0012	0.0083	0.1765	0.0351	-0.0066	-0.1792	0.0012	0.0083	-0.0023	42	-25.2894	-2.0351
		41				26.409	0.9912	-8.4653	0.0016	0.0106	0.1802	0.048	-0.0088	-0.2251	0.0016	0.0106	-0.003	42	-25.4087	-1.048
		42				25.532	0.9885	-8.719	0.002	0.0134	0.1837	0.0646	-0.0115	-0.2778	0.002	0.0134	-0.0039	42	-25.5317	-0.0646
		43				24.659	0.9852	-8.9793	0.0025	0.0166	0.1871	0.0858	-0.0148	-0.3372	0.0025	0.0166	-0.0051	42	-25.6591	**0.9142**
Standard Chartered Bank Ltd	47	38	22.5	13	0.5	13.042	0.9998	-7.6382	0.0002	0.0002	0.1698	0.0002	-0.0002	-0.001	0.0002	0.0002	0	46	-5.0418	-8.0002
		48				4.4526	0.8509	-8.9961	0.0538	0.0772	0.1777	0.3474	-0.1491	0.651	0.0538	0.0772	-0.0368	46	-6.4526	1.6526
		47				5.2171	0.8978	-9.0872	0.0413	0.0592	0.1849	0.2182	-0.1022	0.3589	0.0413	0.0592	-0.0251	46	-6.2171	**0.7818**
		46				6.0228	0.9336	-9.0709	0.0298	0.0428	0.1893	0.1303	-0.0664	0.1742	0.0298	0.0428	-0.0163	46	-6.0228	-0.1303

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JULY-DECEMBER 1997

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamn*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamn*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.97*	*Value of European call option*	*Value of European put option*
Bamburi Cement Ltd	37.5	18	22.49	45	0.5	21.4238	0.9976	-3.6847	0.0006	0.002	0.0799	0.0093	-0.0024	-0.0671	0.0006	0.002	-0.0005	36	-3.4238	-18.0093
		28				12.9453	0.9237	-6.59	0.012	0.038	0.1085	0.4673	-0.0763	-0.9625	0.012	0.038	-0.0166	36	-4.9453	-8.4673
		38				6.503	0.6811	-8.5428	0.0299	0.0947	0.0952	2.9614	-0.3189	-0.9056	0.0299	0.0947	-0.0746	36	-8.503	-0.9614
		48				2.826	0.3962	-7.3037	0.0323	0.1022	0.0601	8.2209	-0.6038	2.3434	0.0323	0.1022	-0.1543	36	-14.826	3.7791
		43				4.3496	0.5328	-8.2598	0.0333	0.1054	0.0782	5.2762	-0.4672	0.3824	0.0333	0.1054	-0.114	36	-11.3496	1.7238
		42				4.726	0.5621	-8.3804	0.033	0.1045	0.0818	4.7589	-0.4379	0.0608	0.033	0.1045	-0.1059	36	-10.726	1.2411
		41				5.1286	0.5918	-8.4712	0.0325	0.103	0.0853	4.268	-0.4082	-0.231	0.0325	0.103	-0.0979	36	-10.1286	0.732
		40				5.5585	0.6216	-8.5297	0.0319	0.1008	0.0888	3.8042	-0.3784	-0.4905	0.0319	0.1008	-0.09	36	-9.5585	**0.1958**
		39				6.0164	0.6514	-8.5541	0.031	0.0981	0.0921	3.3685	-0.3486	-0.7159	0.031	0.0981	-0.0822	36	-9.0164	-0.3685
BAT Ltd	61	33	22.49	30	0.5	31.5105	0.9998	-6.6394	0.0001	0.0003	0.1474	0.0007	-0.0002	-0.0071	0.0001	0.0003	-0.0001	50	-14.5105	-17.0007
		43				22.6265	0.9888	-8.8567	0.0023	0.0127	0.1885	0.0531	-0.0112	-0.2146	0.0023	0.0127	-0.0037	50	-15.6265	-7.0531
		53				14.2837	0.903	-11.3966	0.0133	0.074	0.204	0.6467	-0.097	-0.7447	0.0133	0.074	-0.0328	50	-17.2837	2.3533
		52				15.0621	0.9175	-11.1684	0.0118	0.0656	0.2045	0.5315	-0.0825	-0.7175	0.0118	0.0656	-0.0278	50	-17.0621	1.4685
		51				15.8566	0.9306	-10.9267	0.0103	0.0575	0.2045	0.4324	-0.0694	-0.6767	0.0103	0.0575	-0.0233	50	-16.8566	**0.5676**
		50				16.6659	0.9422	-10.6747	0.0089	0.0499	0.204	0.348	-0.0578	-0.6257	0.0089	0.0499	-0.0194	50	-16.6659	-0.348
BOC Gases Ltd	76	12	22.49	110	0.5	65.3158	0.9982	-2.7169	0.0001	0.0031	0.0527	0.0396	-0.0018	-0.3051	0.0001	0.0031	-0.0009	66	-11.3158	-54.0396
		22				56.8126	0.9833	-6.4842	0.0007	0.0223	0.0896	0.4727	-0.0167	-2.0626	0.0007	0.0223	-0.0087	66	-12.8126	-44.4727
		32				49.1215	0.9501	-11.2813	0.0017	0.0554	0.1154	1.718	-0.0499	-4.8499	0.0017	0.0554	-0.0276	66	-15.1215	-35.718
		42				42.3991	0.9025	-16.0741	0.0029	0.0926	0.131	3.9321	-0.0975	-7.6329	0.0029	0.0926	-0.0567	66	-18.3991	-27.9321
		52				36.6254	0.8465	-20.2292	0.004	0.1273	0.1385	7.0948	-0.1535	-9.7783	0.004	0.1273	-0.0938	66	-22.6254	-21.0948
		62				31.706	0.7868	-23.507	0.0049	0.1563	0.1404	11.1118	-0.2132	-11.0463	0.0049	0.1563	-0.1366	66	-27.706	-15.1118
		72				27.5262	0.7267	-25.894	0.0056	0.1788	0.1385	15.8684	-0.2733	-11.4234	0.0056	0.1788	-0.1832	66	-33.5262	-9.8684
		82				23.9743	0.6685	-27.4813	0.0061	0.195	0.1342	21.253	-0.3315	-11.001	0.0061	0.195	-0.2322	66	-39.9743	-5.253
		92				20.9509	0.6133	-28.3965	0.0065	0.2057	0.1283	27.166	-0.3867	-9.9063	0.0065	0.2057	-0.2828	66	-46.9509	-1.166
		102				18.3705	0.5617	-28.7695	0.0067	0.2118	0.1216	33.522	-0.4383	-8.2695	0.0067	0.2118	-0.3342	66	-54.3705	2.478
		97				19.6101	0.587	-28.643	0.0066	0.2093	0.125	30.2934	-0.413	-9.1479	0.0066	0.2093	-0.3084	66	-50.6101	0.7066
		96				19.8699	0.5922	-28.6038	0.0066	0.2086	0.1257	29.6595	-0.4078	-9.3097	0.0066	0.2086	-0.3033	66	-49.8699	**0.3405**
		95				20.1338	0.5974	-28.5596	0.0065	0.208	0.1263	29.0298	-0.4026	-9.4665	0.0065	0.208	-0.2981	66	-49.1338	-0.0298
Carbacid Investment	84	58	22.49	19	0.5	32.1691	0.9999	-11.6599	0	0.0003	0.2591	0.0004	-0.0001	-0.0031	0	0.0003	-0.0001	66	-24.1691	-8.0004
		68				23.2576	0.9934	-13.7453	0.0016	0.011	0.3009	0.0253	-0.0066	-0.0786	0.0016	0.011	-0.0029	66	-25.2576	1.9747
		67				24.1439	0.9952	-13.5287	0.0012	0.0083	0.2972	0.0179	-0.0048	-0.063	0.0012	0.0083	-0.0021	66	-25.1439	**0.9821**
		66				25.0321	0.9965	-13.3141	0.0009	0.0062	0.2934	0.0125	-0.0035	-0.0494	0.0009	0.0062	-0.0015	66	-25.0321	-0.0125
Crown Berger Ltd	10.5	6	22.49	37	0.5	5.1413	0.9965	-1.2256	0.0038	0.0008	0.0266	0.0031	-0.0035	-0.0198	0.0038	0.0008	-0.0002	10	-1.1413	-2.7744
		16				0.1862	0.147	-0.9372	0.0837	0.0171	0.0068	3.9845	-0.853	2.2785	0.0837	0.0171	-0.0647	10	-6.1862	2.0155
		11				1.4261	0.6491	-2.2305	0.135	0.0275	0.0269	0.7562	-0.3509	-0.0197	0.135	0.0275	-0.0222	10	-2.4261	**0.2438**
		10				1.9779	0.7725	-2.2084	0.1099	0.0224	0.0307	0.4143	-0.2275	-0.1986	0.1099	0.0224	-0.014	10	-1.9779	-0.4143
Dunlop Kenya Ltd	270	11	22.49	161	0.5	260.1966	0.9997	-2.4778	0	0.0018	0.0487	0.0267	-0.0003	-0.2671	0	0.0018	-0.0005	100	-171.1966	-89.0267
		21				251.4631	0.9982	-5.8301	0	0.011	0.0903	0.2296	-0.0018	-1.6096	0	0.011	-0.0036	100	-172.4631	-79.2296
		31				243.0333	0.9949	-10.2762	0	0.0281	0.128	0.7362	-0.0051	-4.0458	0	0.0281	-0.0106	100	-174.0333	-69.7362
		41				234.9635	0.9899	-15.5122	0.0001	0.0512	0.1616	1.6028	-0.0101	-7.272	0.0001	0.0512	-0.0216	100	-175.9635	-60.6028
		51				227.2704	0.9835	-21.2441	0.0001	0.0785	0.1914	2.8462	-0.0165	-10.9941	0.0001	0.0785	-0.0365	100	-178.2704	-51.8462
		61				219.9515	0.9758	-27.2424	0.0002	0.1084	0.2176	4.4637	-0.0242	-14.9826	0.0002	0.1084	-0.0549	100	-180.9515	-43.4637
		71				212.9941	0.9672	-33.3393	0.0002	0.1398	0.2408	6.4427	-0.0328	-19.0697	0.0002	0.1398	-0.0765	100	-183.9941	-35.4427

		81				206.3811	0.9578	-39.4151	0.0003	0.1719	0.2611	8.7661	-0.0422	-23.1357	0.0003	0.1719	-0.1008	100	-187.3811	-27.7661
		91				200.0935	0.9477	-45.3864	0.0003	0.204	0.279	11.415	-0.0523	-27.0972	0.0003	0.204	-0.1276	100	-191.0935	-20.415
		101				194.1119	0.9372	-51.1961	0.0004	0.2357	0.2947	14.3698	-0.0628	-30.8971	0.0004	0.2357	-0.1566	100	-195.1119	-13.3698
		111				188.4174	0.9263	-56.8059	0.0005	0.2667	0.3084	17.6116	-0.0737	-34.4971	0.0005	0.2667	-0.1876	100	-199.4174	-6.6116
		121				182.9918	0.9151	-62.1916	0.0005	0.2968	0.3205	21.1224	-0.0849	-37.873	0.0005	0.2968	-0.2202	100	-203.9918	-0.1224
		131				177.818	0.9038	-67.339	0.0006	0.3258	0.331	24.8851	-0.0962	-41.0106	0.0006	0.3258	-0.2544	100	-208.818	6.1149
		122				182.4633	0.914	-62.7173	0.0005	0.2997	0.3216	21.4876	-0.086	-38.1977	0.0005	0.2997	-0.2235	100	-204.4633	**0.5124**
E A Cables Ltd	33	20	22.49	28	0.5	15.1285	0.9993	-4.0299	0.0004	0.0006	0.0892	0.0013	-0.0007	-0.0103	0.0004	0.0006	-0.0001	29	-6.1285	-9.0013
		30				6.6356	0.8746	-6.3467	0.0316	0.0481	0.1111	0.4448	-0.1254	-0.3173	0.0316	0.0481	-0.0229	29	-7.6356	0.5552
		29				7.3947	0.9065	-6.1561	0.0256	0.039	0.1126	0.3103	-0.0935	-0.3277	0.0256	0.039	-0.017	29	-7.3947	-0.3103
E A Packaging Ltd	67	27	22.49	49	0.5	42.878	0.9991	-5.4825	0.0001	0.0015	0.1203	0.0063	-0.0009	-0.0561	0.0001	0.0015	-0.0003	49	-20.878	-22.0063
		37				34.0587	0.9865	-8.008	0.0015	0.0164	0.1602	0.1234	-0.0135	-0.5717	0.0015	0.0164	-0.0051	49	-22.0587	-12.1234
		47				25.7462	0.9359	-11.2243	0.0054	0.0594	0.1848	0.7474	-0.0641	-1.7782	0.0054	0.0594	-0.0252	49	-23.7462	-2.7474
		57				18.5124	0.8326	-14.1993	0.0108	0.1187	0.1863	2.45	-0.1674	-2.7435	0.0108	0.1187	-0.0683	49	-26.5124	5.55
		52				21.2445	0.8799	-13.1277	0.0086	0.0948	0.1885	1.6075	-0.1201	-2.4757	0.0086	0.0948	-0.0483	49	-24.2445	1.3925
		51				22.6944	0.9007	-12.5218	0.0075	0.0827	0.1882	1.2701	-0.0993	-2.2719	0.0075	0.0827	-0.0396	49	-24.6944	**0.7299**
		50				23.4391	0.9103	-12.206	0.007	0.0768	0.1877	1.1212	-0.0897	-2.157	0.007	0.0768	-0.0357	49	-24.4391	-0.1212
EA Portland Cement	44	17	22.49	58	0.5	28.8237	0.9974	-3.5313	0.0004	0.0025	0.0753	0.0156	-0.0026	-0.1147	0.0004	0.0025	-0.0006	20	-25.8237	-3.0156
		27				20.2893	0.9525	-6.648	0.0055	0.0308	0.1081	0.4177	-0.0475	-1.2216	0.0055	0.0308	-0.0125	20	-27.2893	6.5823
		22				24.4507	0.985	-4.9324	0.0021	0.0118	0.0944	0.1108	-0.015	-0.5109	0.0021	0.0118	-0.0039	20	-26.4507	1.8892
		21				25.3132	0.9888	-4.6234	0.0016	0.0092	0.091	0.0797	-0.0112	-0.4028	0.0016	0.0092	-0.0029	20	-26.3132	**0.9203**
		20				26.1829	0.9918	-4.3288	0.0012	0.0069	0.0873	0.0558	-0.0082	-0.3092	0.0012	0.0069	-0.0021	20	-26.1829	-0.0558
Firestone EA Ltd	28	15	22.49	35	0.5	14.5973	0.999	-3.0308	0.0005	0.0006	0.0669	0.002	-0.001	-0.0161	0.0005	0.0006	-0.0001	24	-5.5973	-9.002
		25				6.2639	0.8499	-5.5597	0.0337	0.0462	0.0877	0.6049	-0.1501	-0.5352	0.0337	0.0462	-0.024	24	-7.2639	**0.3951**
		24				6.9857	0.8851	-5.3468	0.028	0.0384	0.089	0.4331	-0.1149	-0.5232	0.028	0.0384	-0.0182	24	-6.9857	-0.4331
EABL	60	42	22.49	25	0.5	22.4773	0.9969	-8.4962	0.0009	0.0039	0.1867	0.0103	-0.0031	-0.0551	0.0009	0.0039	-0.001	49	-15.4773	-7.0103
		52				13.8391	0.9375	-10.8427	0.0116	0.0522	0.2121	0.3084	-0.0625	-0.3917	0.0116	0.0522	-0.0203	49	-16.8391	2.6916
		51				14.662	0.9499	-10.6161	0.0097	0.0438	0.2117	0.2378	-0.0501	-0.3662	0.0097	0.0438	-0.0162	49	-16.662	1.7622
		50				15.4985	0.9604	-10.3804	0.0081	0.0362	0.2106	0.1806	-0.0396	-0.3314	0.0081	0.0362	-0.0128	49	-16.4985	**0.8194**
		49				16.3465	0.9693	-10.1392	0.0065	0.0294	0.209	0.135	-0.0307	-0.2912	0.0065	0.0294	-0.0099	49	-16.3465	-0.135
Kenya National Mills	47	31	22.49	34	0.5	19.3394	0.9898	-6.4194	0.0024	0.009	0.1359	0.0423	-0.0102	-0.1891	0.0024	0.009	-0.0026	37	-13.3394	-6.0423
		41				11.1331	0.8762	-9.0684	0.0181	0.068	0.1502	0.7725	-0.1238	-0.8282	0.0181	0.068	-0.033	37	-15.1331	3.2275
		36				15.0571	0.9551	-7.7781	0.0084	0.0314	0.1492	0.2283	-0.0449	-0.5428	0.0084	0.0314	-0.0117	37	-14.0571	-1.2283
		37				14.2359	0.9433	-8.0569	0.0101	0.0379	0.1505	0.3006	-0.0567	-0.6207	0.0101	0.0379	-0.0148	37	-14.2359	-0.3006
		38				13.4309	0.9295	-8.33	0.0119	0.0449	0.1513	0.3893	-0.0705	-0.6927	0.0119	0.0449	-0.0185	37	-14.4309	**0.6107**
Kenya Oil Co Ltd	70	45	22.49	22	0.5	29.7865	0.9999	-9.0476	0	0.0003	0.201	0.0004	-0.0001	-0.0035	0	0.0003	0	48	-26.7865	-3.0004
		55				20.8857	0.9906	-11.1724	0.0023	0.0125	0.2423	0.036	-0.0094	-0.1185	0.0023	0.0125	-0.0035	48	-27.8857	6.964
		50				25.3228	0.9985	-10.0778	0.0005	0.0024	0.2229	0.0049	-0.0015	-0.0288	0.0005	0.0024	-0.0006	48	-27.3228	1.9951
		49				26.2146	0.999	-9.8681	0.0003	0.0017	0.2186	0.0031	-0.001	-0.02	0.0003	0.0017	-0.0004	48	-27.2146	**0.9969**
		48				27.1071	0.9994	-9.6606	0.0002	0.0011	0.2142	0.0019	-0.0006	-0.0136	0.0002	0.0011	-0.0002	48	-27.1071	-0.0019

KPLC	171	144	22.49	47	0.5	47.6397	0.8465	-35.2952	0.0042	0.2863	0.4856	5.3242	-0.1535	-6.354	0.0042	0.2863	-0.1578	180	-11.6397	-41.3242
		154				41.1956	0.7938	-37.4661	0.005	0.3448	0.4727	7.8165	-0.2062	-6.5152	0.005	0.3448	-0.2154	180	-15.1956	-33.8165
		164				35.3681	0.7357	-38.9287	0.0058	0.3955	0.4522	10.9254	-0.2643	-5.9679	0.0058	0.3955	-0.2806	180	-19.3681	-26.9254
		174				30.1645	0.6744	-39.6219	0.0063	0.4355	0.4258	14.6582	-0.3256	-4.6514	0.0063	0.4355	-0.3516	180	-24.1645	-20.6582
		184				25.5716	0.6118	-39.5536	0.0067	0.4633	0.3952	19.0018	-0.3882	-2.5732	0.0067	0.4633	-0.4269	180	-29.5716	-15.0018
		194				21.5602	0.5497	-38.7861	0.007	0.4786	0.3622	23.9267	-0.4503	0.204	0.007	0.4786	-0.5047	180	-35.5602	-9.9267
		204				18.0893	0.4895	-37.4194	0.007	0.4822	0.328	29.3923	-0.5105	3.5806	0.007	0.4822	-0.5835	180	-42.0893	-5.3923
		214				15.1113	0.4323	-35.5735	0.0069	0.4754	0.2941	35.3507	-0.5677	7.4363	0.0069	0.4754	-0.6621	180	-49.1113	-1.3507
		224				12.575	0.3791	-33.3741	0.0067	0.4601	0.2613	41.7509	-0.6209	11.6454	0.0067	0.4601	-0.7396	180	-56.575	2.2491
		219				13.7912	0.4052	-34.5102	0.0068	0.4687	0.2775	38.4988	-0.5948	9.5044	0.0068	0.4687	-0.701	180	-52.7912	0.5012
		218				14.0467	0.4105	-34.7292	0.0068	0.4702	0.2808	37.8607	-0.5895	9.0845	0.0068	0.4702	-0.6933	180	-52.0467	**0.1393**
		217				14.3064	0.4159	-34.9451	0.0069	0.4716	0.2841	37.2267	-0.5841	8.6676	0.0069	0.4716	-0.6855	180	-51.3064	-0.2267
Total Kenya Ltd	84.5	29	22.49	57	0.5	58.5934	0.9991	-5.9101	0.0001	0.0018	0.1292	0.009	-0.0009	-0.0817	0.0001	0.0018	-0.0004	53	-34.5934	-24.009
		39				49.7539	0.9918	-8.4229	0.0007	0.0134	0.1703	0.106	-0.0082	-0.5847	0.0007	0.0134	-0.004	53	-35.7539	-14.106
		49				41.2331	0.9666	-11.6299	0.0022	0.0445	0.2022	0.5215	-0.0334	-1.7819	0.0022	0.0445	-0.0167	53	-37.2331	-4.5215
		59				33.3573	0.9149	-15.1883	0.0046	0.093	0.2198	1.5822	-0.0851	-3.3304	0.0046	0.093	-0.0439	53	-39.3573	4.4178
		54				37.1945	0.9442	-13.409	0.0033	0.0672	0.213	0.9511	-0.0558	-2.5561	0.0033	0.0672	-0.0283	53	-38.1945	**0.0489**
		53				37.9872	0.9493	-13.0499	0.0031	0.0623	0.2111	0.8503	-0.0507	-2.398	0.0031	0.0623	-0.0257	53	-37.9872	-0.8503
Unga Group Ltd	150	88	22.49	39	0.5	71.4558	0.9934	-18.2057	0.0004	0.0196	0.3878	0.0963	-0.0066	-0.5195	0.0004	0.0196	-0.0054	120	-39.4558	-32.0963
		98				62.7263	0.9817	-20.87	0.0011	0.0477	0.4226	0.3032	-0.0183	-1.174	0.0011	0.0477	-0.0153	120	-40.7263	-22.3032
		108				54.2543	0.9588	-23.7947	0.0021	0.0936	0.4478	0.7677	-0.0412	-2.0889	0.0021	0.0936	-0.0347	120	-42.2543	-12.7677
		118				46.1943	0.9216	-26.758	0.0035	0.1553	0.4602	1.644	-0.0784	-3.0423	0.0035	0.1553	-0.067	120	-44.1943	-3.644
		128				38.7041	0.8688	-29.4108	0.0051	0.2258	0.4581	3.0903	-0.1312	-3.6853	0.0051	0.2258	-0.1138	120	-46.7041	4.9097
		123				42.3688	0.8971	-28.1471	0.0043	0.19	0.461	2.2867	-0.1029	-3.4265	0.0043	0.19	-0.0886	120	-45.3688	**0.7133**
		122				43.1215	0.9023	-27.8778	0.0042	0.183	0.4611	2.1459	-0.0977	-3.3582	0.0042	0.183	-0.084	120	-45.1215	-0.1459

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JANUARY TO JUNE 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.98*	*Value of European call option*	*Value of European put option*
Brooke Bond	110	91	23.32	23	0.5	29.1923	0.9752	-19.2463	0.0032	0.0451	0.3904	0.1769	-0.0248	-0.3607	0.0032	0.0451	-0.0145	132	11.8077	-41.1769
		97				24.1494	0.942	-20.6077	0.0065	0.0903	0.3973	0.4737	-0.058	-0.4769	0.0065	0.0903	-0.0343	132	10.8506	-35.4737
		107				16.4848	0.8335	-22.004	0.014	0.1942	0.376	1.7085	-0.1665	0.2022	0.014	0.1942	-0.1001	132	8.5152	-26.7085
		117				10.2679	0.6624	-21.1339	0.0204	0.2842	0.313	4.391	-0.3376	3.1476	0.0204	0.2842	-0.2077	132	4.7321	-19.391
		127				5.8157	0.466	-17.7084	0.0222	0.3092	0.2272	8.8383	-0.534	8.6485	0.0222	0.3092	-0.3379	132	-0.8157	-13.8383
		137				3.0058	0.2907	-12.8861	0.0192	0.2665	0.1448	14.9277	-0.7093	15.5461	0.0192	0.2665	-0.4648	132	-8.0058	-9.9277
		147				1.4284	0.1624	-8.2287	0.0137	0.1911	0.0822	22.2498	-0.8376	22.2788	0.0137	0.1911	-0.5719	132	-16.4284	-7.2498
		157				0.6302	0.0824	-4.6852	0.0085	0.1182	0.0422	30.3509	-0.9176	27.8976	0.0085	0.1182	-0.6564	132	-25.6302	-5.3509
		167				0.2607	0.0385	-2.4185	0.0047	0.0649	0.0198	38.8808	-0.9615	32.2397	0.0047	0.0649	-0.7233	132	-35.2607	-3.8808
		126				6.1819	0.4853	-18.1406	0.0223	0.3101	0.236	8.3145	-0.5147	8.0088	0.0223	0.3101	-0.3246	132	-0.1819	-14.3145
		125				6.5651	0.5049	-18.5568	0.0223	0.3103	0.2449	7.8078	-0.4951	7.385	0.0223	0.3103	-0.3114	132	**0.4349**	-14.8078
Eaagads Ltd	41.5	28	23.32	30	0.5	16.5999	0.994	-5.8986	0.0019	0.005	0.1233	0.0182	-0.006	-0.0877	0.0019	0.005	-0.0013	37	-7.5999	-9.0182
		38				8.3872	0.8579	-8.326	0.0255	0.066	0.1361	0.7049	-0.1421	-0.4397	0.0255	0.066	-0.033	37	-9.3872	**0.2951**
		37				9.1182	0.8843	-8.1479	0.0221	0.0572	0.1379	0.546	-0.1157	-0.4691	0.0221	0.0572	-0.0267	37	-9.1182	-0.546
George Williamson	85.8	94	23.32	23	0.5	6.6303	0.5937	-15.7452	0.0278	0.2353	0.2215	4.4847	-0.4063	3.763	0.0278	0.2353	-0.1967	141	40.3697	-51.4847
		104				3.0171	0.3503	-11.4749	0.0266	0.2248	0.1352	9.771	-0.6497	10.1087	0.0266	0.2248	-0.3276	141	33.9829	-46.771
		114				1.1902	0.1713	-6.6979	0.0182	0.1543	0.0675	16.8434	-0.8287	16.961	0.0182	0.1543	-0.4397	141	25.8098	-43.8434
		124				0.4149	0.0713	-3.2306	0.0098	0.0826	0.0285	24.9676	-0.9287	22.5037	0.0098	0.0826	-0.5232	141	16.5851	-41.9676
		134				0.1305	0.026	-1.333	0.0043	0.0367	0.0105	33.5826	-0.974	26.4766	0.0043	0.0367	-0.5858	141	**6.8695**	-40.5826
		144				0.0378	0.0085	-0.4853	0.0017	0.0141	0.0035	42.3893	-0.9915	29.3996	0.0017	0.0141	-0.6373	141	**-3.0378**	-39.3893
		135				0.1157	0.0234	-1.2111	0.004	0.0335	0.0094	34.4577	-0.9766	26.806	0.004	0.0335	-0.5913	141	5.8843	-40.4577
		136				0.1025	0.021	-1.0991	0.0036	0.0306	0.0085	35.3344	-0.979	27.1256	0.0036	0.0306	-0.5967	141	4.8975	-40.3344
		137				0.0907	0.0188	-0.9962	0.0033	0.0279	0.0076	36.2126	-0.9812	27.436	0.0033	0.0279	-0.602	141	3.9093	-40.2126
		138				0.0802	0.0168	-0.9019	0.003	0.0254	0.0068	37.0921	-0.9832	27.7378	0.003	0.0254	-0.6072	141	2.9198	-40.0921
		139				0.0708	0.0151	-0.8156	0.0027	0.0231	0.0061	37.9727	-0.9849	28.0317	0.0027	0.0231	-0.6124	141	1.9292	-39.9727
		140				0.0626	0.0135	-0.7367	0.0025	0.0209	0.0055	38.8543	-0.9865	28.3181	0.0025	0.0209	-0.6175	141	**0.9374**	-39.8543
		141				0.0552	0.012	-0.6648	0.0022	0.019	0.0049	39.7369	-0.988	28.5976	0.0022	0.019	-0.6225	141	-0.0552	-39.7369
Kakuzi Ltd	96	87	23.32	26	0.5	19.5185	0.8965	-18.6944	0.0102	0.1222	0.3327	0.9433	-0.1035	-0.6389	0.0102	0.1222	-0.0544	141.9	35.3815	-55.8433
		97				12.5951	0.7485	-19.446	0.0181	0.2164	0.2963	2.9194	-0.2515	0.6848	0.0181	0.2164	-0.1353	141.9	32.3049	-47.8194
		107				7.3977	0.5541	-17.6563	0.0224	0.2683	0.229	6.6214	-0.4459	4.5498	0.0224	0.2683	-0.2471	141.9	27.5023	-41.5214
		117				3.9685	0.3632	-13.8289	0.0213	0.2547	0.1545	12.0916	-0.6368	10.4526	-0.3661	0.2547	-0.3661	141.9	20.9315	-36.9916
		127				1.9612	0.213	-9.4409	0.0165	0.1973	0.0924	18.9838	-0.787	16.9159	0.0165	0.1973	-0.4727	141.9	12.9388	-33.8838
		137				0.9026	0.1135	-5.7234	0.0109	0.1305	0.05	26.8245	-0.8865	22.7088	0.0109	0.1305	-0.5597	141.9	3.9974	-31.7245
		147				0.3911	0.0558	-3.1416	0.0064	0.0763	0.0248	35.2124	-0.9442	27.366	0.0064	0.0763	-0.6293	141.9	-5.4911	-30.1124
		138				0.8323	0.1061	-5.4126	0.0104	0.1243	0.0467	27.6442	-0.8939	23.2271	0.0104	0.1243	-0.5673	141.9	3.0677	-31.5442
		139				0.767	0.099	-5.1138	0.0099	0.1183	0.0437	28.4688	-0.901	23.7335	0.0099	0.1183	-0.5748	141.9	2.133	-31.3688
		140				0.7064	0.0924	-4.8268	0.0094	0.1124	0.0408	29.2982	-0.9076	24.228	0.0094	0.1124	-0.5821	141.9	1.1936	-31.1982
		141				0.6503	0.0862	-4.5517	0.0089	0.1067	0.0381	30.132	-0.9138	24.7106	0.0089	0.1067	-0.5893	141.9	**0.2497**	-31.032
		142				0.5982	0.0803	-4.2883	0.0084	0.1012	0.0355	30.9699	-0.9197	25.1815	0.0084	0.1012	-0.5963	141.9	-0.6982	-30.8699
Kapchorua Tea Co	70	**64**	23.32	22	0.5	13.4663	0.9197	-13.4964	0.0137	0.0738	0.2546	0.4225	-0.0803	-0.2142	0.0137	0.0738	-0.0302	75.5	-1.9663	-11.9225
		74				6.6028	0.6809	-13.4643	0.0328	0.1768	0.2053	2.4585	-0.3191	1.8932	0.0328	0.1768	-0.124	75.5	-5.1028	-3.9585
		84				2.5034	0.3652	-9.4708	0.0345	0.1861	0.1153	7.2584	-0.6348	7.9621	0.0345	0.1861	-0.2585	75.5	-11.0034	1.2416
		75				6.0627	0.6494	-13.2234	0.034	0.1834	0.197	2.8083	-0.3506	2.3416	0.034	0.1834	-0.1367	75.5	-5.5627	-3.3083
		76				5.5523	0.6174	-12.9385	0.035	0.1889	0.1883	3.1878	-0.3826	2.8341	0.035	0.1889	-0.1498	75.5	-6.0523	-2.6878
		77				5.0715	0.585	-12.6118	0.0358	0.193	0.1794	3.597	-0.415	3.3683	0.0358	0.193	-0.1632	75.5	-6.5715	-2.097
		78				4.6203	0.5524	-12.2464	0.0363	0.1958	0.1702	4.0357	-0.4476	3.9412	0.0363	0.1958	-0.1768	75.5	-7.1203	-1.5357

		79				4.1984	0.5199	-11.846	0.0366	0.1972	0.161	4.5037	-0.4801	4.5492	0.0366	0.1972	-0.1906	75.5	-7.6984	-1.0037
		80				3.8051	0.4876	-11.4146	0.0366	0.1974	0.1516	5.0004	-0.5124	5.1882	0.0366	0.1974	-0.2043	75.5	-8.3051	-0.5004
		81				3.4399	0.4558	-10.9566	0.0364	0.1963	0.1423	5.5251	-0.5442	5.8537	0.0364	0.1963	-0.2181	75.5	-8.9399	-0.0251
		82				3.1019	0.4247	-10.4768	0.036	0.1939	0.1331	6.0771	-0.5753	6.541	0.036	0.1939	-0.2317	75.5	-9.6019	**0.4229**
Limuru Tea Co	750	782	23.32	2	0.5	54.0661	1	%-162.2918	0	0	3.4797	0	0	0	0	0	0	755	-81.0661	**27**
		792				45.1667	1	%-164.3665	0	0.0001	3.5241	0	0	0.0007	0	0.0001	0	755	-82.1667	**37**
		802				36.2678	0.9998	%-166.4123	0.0001	0.0044	3.5678	0.0006	-0.0002	0.0302	0.0001	0.0044	-0.0008	755	-83.2678	**46.9994**
		812				27.3817	0.9958	%-167.9113	0.0012	0.0656	3.5973	0.0139	-0.0042	0.6065	0.0012	0.0656	-0.0158	755	-84.3817	**56.9861**
		822				18.6325	0.9616	%-164.7297	0.0079	0.4417	3.513	0.1641	-0.0384	5.8634	0.0079	0.4417	-0.1447	755	-85.6325	**66.8359**
Rea Vipingo Ltd	8.2	5	23.32	16	0.5	3.7503	1	-1.0377	0	0	0.0222	0	0	0	0	0	0	6.4	-2.3503	-1.4
		6				2.8604	0.9999	-1.2453	0.0003	0	0.0267	0	-0.0001	-0.0001	0.0003	0	0	6.4	-2.4604	-0.4
		7				1.9724	0.9935	-1.4568	0.0196	0.0011	0.0309	0.002	-0.0065	-0.004	0.0196	0.0011	-0.0003	6.4	-2.5724	**0.598**
		8				1.1243	0.9041	-1.6246	0.1834	0.0099	0.0314	0.0438	-0.0959	0.0357	0.1834	0.0099	-0.0041	6.4	-2.7243	1.5562
Sasini Tea & Coffe	61.7	**34**	23.32	44	0.5	31.4922	0.9928	-7.3253	0.001	0.0087	0.1488	0.0502	-0.0072	-0.2691	0.001	0.0087	-0.0025	75.1	**9.6078**	-41.1502
		44				23.0274	0.9471	-10.3286	0.0056	0.0471	0.177	0.4849	-0.0529	-1.1971	0.0056	0.0471	-0.0188	75.1	**8.0726**	-31.5849
		54				15.6538	0.8312	-13.1451	0.0131	0.1099	0.1781	2.0106	-0.1688	-1.9382	0.0131	0.1099	-0.0621	75.1	**5.4462**	-23.1106
		64				9.9452	0.6601	-14.2115	0.0191	0.1598	0.1539	5.2015	-0.3399	-0.9293	0.0191	0.1598	-0.1309	75.1	**1.1548**	-16.3015
		74				5.9775	0.4785	-13.138	0.0208	0.1738	0.1177	10.1331	-0.5215	2.2195	0.0208	0.1738	-0.2116	75.1	-4.8775	-11.2331
		84				3.4445	0.3223	-10.7191	0.0187	0.1565	0.0822	16.4995	-0.6777	6.7138	0.0187	0.1565	-0.2916	75.1	-12.3445	-7.5995
		94				1.9254	0.2053	-7.9638	0.0148	0.1241	0.0537	23.8799	-0.7947	11.5444	0.0148	0.1241	-0.3646	75.1	-20.8254	-4.9799
		104				1.054	0.1255	-5.5237	0.0108	0.0901	0.0335	31.9078	-0.8745	16.0599	0.0108	0.0901	-0.4293	75.1	-29.954	-3.0078
		114				0.5691	0.0745	-3.644	0.0073	0.0615	0.0201	40.3224	-0.9255	20.0149	0.0073	0.0615	-0.4871	75.1	-39.4691	-1.4224
		65				9.4731	0.6416	-14.1935	0.0195	0.163	0.1506	5.6193	-0.3584	-0.7038	0.0195	0.163	-0.1386	75.1	**0.6269**	-15.7193
		66				9.0185	0.6232	-14.1536	0.0198	0.1657	0.1472	6.0546	-0.3768	-0.4563	0.0198	0.1657	-0.1465	75.1	**0.0815**	-15.1546
		67				8.5812	0.6047	-14.0923	0.0201	0.168	0.1436	6.5072	-0.3953	-0.1875	0.0201	0.168	-0.1545	75.1	-0.4812	-14.6072

SIMULATION OF OPTION VALUES USING BOPSCOL
COMMERCIAL AND SERVICES SECTOR-JANUARY TO JUNE 1998

Company	Stock price	Exercise price	Rf	V	t	Call price	Call delta	Call theta	Call gamma	Call vega	Call rho	Put price	Put delta	Put theta	Put gamma	Put vega	Put rho	Stock price at expiratior 30.6.98	Value of European call option	Value of European put option
A Baumann & Co	15.6	14	23.32	11	0.5	3.1414	0.9983	-2.9058	0.0045	0.0006	0.0622	0.0006	-0.0017	-0.0003	0.0045	0.0006	-0.0001	15.5	-1.6414	-1.5006
		15				2.2603	0.9794	-3.0962	0.0409	0.0055	0.0651	0.0094	-0.0206	0.0169	0.0409	0.0055	-0.0017	15.5	-1.7603	-0.5094
		16				1.4296	0.8873	-3.1268	0.1576	0.0211	0.0621	0.0686	-0.1127	0.1938	0.1576	0.0211	-0.0091	15.5	-1.9296	**0.4314**
CMC Holdings Ltd	39	31	23.32	29	0.5	11.5379	0.9633	-6.7127	0.01	0.0221	0.1302	0.1261	-0.0367	-0.2791	0.01	0.0221	-0.0078	35	-7.5379	-4.1261
		41				4.499	0.6654	-7.9147	0.0455	0.1004	0.1073	1.9866	-0.3346	0.5942	0.0455	0.1004	-0.0752	35	-10.499	4.0134
		51				1.1486	0.262	-4.7198	0.0407	0.0898	0.0454	7.5356	-0.738	5.8644	0.0407	0.0898	-0.1816	35	-17.1486	8.4644
		61				0.212	0.0655	-1.5662	0.0159	0.0352	0.0117	15.4984	-0.9345	11.0934	0.0159	0.0352	-0.2597	35	-26.212	10.5016
		71				0.0317	0.0122	-0.3572	0.004	0.0087	0.0022	24.2176	-0.9878	14.3778	0.004	0.0087	-0.3137	35	-36.0317	11.7824
		35				8.3444	0.8847	-7.6554	0.0243	0.0536	0.1308	0.4923	-0.1153	-0.3917	0.0243	0.0536	-0.0249	35	-8.3444	-0.4923
		36				7.6126	0.8558	-7.8241	0.0284	0.0626	0.1288	0.6505	-0.1442	-0.3528	0.0284	0.0626	-0.0314	35	-8.6126	**0.3495**
Car & General	16.1	8	23.32	43	0.5	8.9841	0.9977	-1.6859	0.0015	0.0008	0.0354	0.0036	-0.0023	-0.0256	0.0015	0.0008	-0.0002	11.1	-5.8841	-3.1036
		19				1.6155	0.4963	-3.4396	0.0815	0.0454	0.0319	2.4244	-0.5037	0.5035	0.0815	0.0454	-0.0527	11.1	-9.5155	5.4756
		29				0.1598	0.0808	-0.999	0.0306	0.017	0.0057	9.8681	-0.9192	5.0195	0.0306	0.017	-0.1233	11.1	-18.0598	8.0319
		9				8.1032	0.9928	-1.9354	0.0041	0.0023	0.0394	0.0127	-0.0072	-0.0676	0.0041	0.0023	-0.0006	11.1	-6.0032	-2.1127
		10				7.2356	0.9822	-2.2149	0.009	0.005	0.0429	0.035	-0.0178	-0.1396	0.009	0.005	-0.0016	11.1	-6.1356	-1.135
		11				6.3914	0.9631	-2.5203	0.0165	0.0092	0.0456	0.0807	-0.0369	-0.2374	0.0165	0.0092	-0.0034	11.1	-6.2914	-0.1807
		12				5.5824	0.9335	-2.8349	0.0264	0.0147	0.0472	0.1617	-0.0665	-0.3445	0.0264	0.0147	-0.0062	11.1	-6.4824	**0.7383**
Express Kenya Ltd	60	32	23.32	36	0.5	31.527	0.9989	-6.6815	0.0002	0.0016	0.142	0.0051	-0.0011	-0.0404	0.0002	0.0016	-0.0004	30	-33.527	1.9949
		42				22.7696	0.9765	-9.2006	0.0036	0.0235	0.1791	0.1471	-0.0235	-0.4842	0.0036	0.0235	-0.0078	30	-34.7696	11.8529
		52				14.7927	0.8744	-11.9395	0.0135	0.0876	0.1884	1.0697	-0.1256	-1.1478	0.0135	0.0876	-0.043	30	-36.7927	20.9303
		62				8.5558	0.676	-12.9535	0.0235	0.1525	0.16	3.7321	-0.324	-0.0864	0.0235	0.1525	-0.1159	30	-40.5558	28.2679
		72				4.4524	0.4479	-11.2704	0.0259	0.1678	0.1121	8.5281	-0.5521	3.6721	0.0259	0.1678	-0.2083	30	-46.4524	33.4719
Kenya Airways	7.4	5	23.32	25	0.5	2.9509	0.9985	-1.0413	0.0038	0.0003	0.0222	0.0006	-0.0015	-0.0037	0.0038	0.0003	-0.0001	7	-0.9509	-2.0006
		6				2.0744	0.9735	-1.2765	0.047	0.0032	0.0256	0.0141	-0.0265	-0.0313	0.047	0.0032	-0.0011	7	-1.0744	-1.0141
		7				1.2752	0.856	-1.4766	0.1735	0.0119	0.0253	0.1048	-0.144	-0.0238	0.1735	0.0119	-0.0059	7	-1.2752	-0.1048
		8				0.6637	0.6206	-1.414	0.2909	0.0199	0.0196	0.3832	-0.3794	0.2463	0.2909	0.0199	-0.016	7	-1.6637	**0.6168**
Lonhro Motors	39	23	23.32	25	0.5	18.5315	0.9999	-4.775	0.0001	0.0001	0.1023	0.0002	-0.0001	-0.0017	0.0001	0.0001	0	26.3	-15.2315	-3.3002
		33				9.7691	0.9548	-7.0615	0.0138	0.0262	0.1373	0.1372	-0.0452	-0.2128	0.0138	0.0262	-0.0095	26.3	-16.4691	6.5628
		24				17.6418	0.9998	-4.9847	0.0001	0.0002	0.1067	0.0004	-0.0002	-0.0039	0.0001	0.0002	0	26.3	-15.3418	-2.3004
		25				16.7519	0.9998	-5.1919	0.0001	0.0003	0.1112	0.0004	-0.0002	-0.0036	0.0001	0.0003	0	26.3	-15.4519	-1.3004
		26				15.8626	0.9994	-5.4035	0.0003	0.0006	0.1156	0.001	-0.0006	-0.0076	0.0003	0.0006	-0.0001	26.3	-15.5626	-0.301
		27				14.974	0.9987	-5.6182	0.0006	0.0012	0.1199	0.0024	-0.0013	-0.0148	0.0006	0.0012	-0.0003	26.3	-15.674	**0.6976**
Marshalls EA Ltd	26.2	20	23.32	17	0.5	8.4016	0.9995	-4.1532	0.0006	0.0003	0.0889	0.0005	-0.0005	-0.0025	0.0006	0.0003	-0.0001	28.3	-0.1016	-8.3005
		21				7.5132	0.998	-4.3657	0.0021	0.0012	0.0932	0.002	-0.002	-0.0074	0.0021	0.0012	-0.0003	28.3	-0.2132	-7.302
		31				0.7118	0.3559	-3.1822	0.1183	0.069	0.0431	2.1	-0.6441	3.2513	0.1183	0.069	-0.0949	28.3	-3.4118	0.6
		30				1.034	0.4615	-3.8293	0.1261	0.0736	0.0553	1.5323	-0.5385	2.3968	0.1261	0.0736	-0.0782	28.3	-2.734	**0.1677**
		29				1.4519	0.5735	-4.4007	0.1245	0.0726	0.0679	1.0602	-0.4265	1.6178	0.1245	0.0726	-0.0612	28.3	-2.1519	-0.3602

Nation Media Grou	129.9	38	23.32	80	0.5	96.1873	0.9961	-8.5923	0.0002	0.0106	0.166	0.1051	-0.0039	-0.706	0.0002	0.0106	-0.003	113.2	-20.9873	-75.3051
		48				87.5624	0.9877	-11.8399	0.0004	0.0292	0.2037	0.3796	-0.0123	-1.8782	0.0004	0.0292	-0.0099	113.2	-22.3624	-65.5796
		58				79.2533	0.9722	-15.6605	0.0009	0.0586	0.2352	0.9699	-0.0278	-3.6235	0.0009	0.0586	-0.0229	113.2	-24.0533	-56.1699
		68				71.3773	0.9488	-19.8213	0.0014	0.0966	0.2593	1.9933	-0.0512	-5.7089	0.0014	0.0966	-0.0432	113.2	-26.1773	-47.1933
		78				64.0203	0.9178	-24.0212	0.0021	0.1393	0.276	3.5357	-0.0822	-7.8336	0.0021	0.1393	-0.071	113.2	-28.8203	-38.7357
		88				57.2332	0.8805	-27.9834	0.0027	0.1832	0.2857	5.6481	-0.1195	-9.7204	0.0027	0.1832	-0.1059	113.2	-32.0332	-30.8481
		98				51.0357	0.8382	-31.4997	0.0033	0.2251	0.2892	8.3499	-0.1618	-11.1614	0.0033	0.2251	-0.1468	113.2	-35.8357	-23.5499
		108				45.4227	0.7926	-34.4413	0.0039	0.2628	0.2877	11.6363	-0.2074	-12.0276	0.0039	0.2628	-0.1929	113.2	-40.2227	-16.8363
		118				40.3721	0.745	-36.7494	0.0044	0.295	0.282	15.4851	-0.255	-12.2604	0.0044	0.295	-0.2431	113.2	-45.1721	-10.6851
		128				35.8505	0.6967	-38.4197	0.0048	0.3209	0.2733	19.863	-0.3033	-11.8553	0.0048	0.3209	-0.2963	113.2	-50.6505	-5.063
		138				31.8185	0.6488	-39.4855	0.005	0.3407	0.2623	24.7303	-0.3512	-10.8457	0.005	0.3407	-0.3518	113.2	-56.6185	**0.0697**
		137				32.2008	0.6535	-39.4046	0.005	0.339	0.2635	24.2228	-0.3465	-10.9724	0.005	0.339	-0.3461	113.2	-56.0008	-0.4228
Pearl Drycleaners	10.5	9	23.32	4	0.5	2.4905	1	-1.8678	0	0	0.04	0	0	0	0	0	0	10.3	-1.1905	-1.3
		10				1.6006	1	-2.0753	0	0	0.0445	0	0	0	0	0	0	10.3	-1.3006	-0.3
		11				0.7113	0.9936	-2.2725	0.0602	0.0013	0.0486	0.0006	-0.0064	0.0104	0.0602	0.0013	-0.0003	10.3	-1.4113	**0.6994**
Standard Newspap	32	6	23.32	92	0.5	26.6676	0.999	-1.3086	0.0002	0.0008	0.0265	0.0072	-0.001	-0.0634	0.0002	0.0008	-0.0002	29.9	-2.7676	-23.9072
		16				18.4461	0.9418	-5.1479	0.0056	0.0263	0.0585	0.6851	-0.0582	-1.8274	0.0056	0.0263	-0.0127	29.9	-4.5461	-14.5851
		26				12.2785	0.7949	-8.9845	0.0137	0.0643	0.0658	3.417	-0.2051	-3.5886	0.0137	0.0643	-0.0499	29.9	-8.3785	-7.317
		36				8.1466	0.6268	-10.6594	0.0182	0.0857	0.0596	8.1845	-0.3732	-3.1882	0.0182	0.0857	-0.1006	29.9	-14.2466	-2.0845
		46				5.4635	0.4787	-10.5914	0.0191	0.0901	0.0493	14.4008	-0.5213	-1.0448	0.0191	0.0901	-0.1554	29.9	-21.5635	1.6992
		37				7.8228	0.6108	-10.7162	0.0184	0.0868	0.0586	8.7506	-0.3892	-3.0374	0.0184	0.0868	-0.106	29.9	-14.9228	-1.6506
		38				7.5128	0.595	-10.7563	0.0186	0.0877	0.0576	9.3306	-0.405	-2.87	0.0186	0.0877	-0.1115	29.9	-15.6128	-1.2306
		39				7.216	0.5794	-10.7808	0.0188	0.0885	0.0566	9.9237	-0.4206	-2.687	0.0188	0.0885	-0.1169	29.9	-16.316	-0.8237
		40				6.9318	0.5641	-10.7907	0.0189	0.0891	0.0556	10.5295	-0.4359	-2.4893	0.0189	0.0891	-0.1224	29.9	-17.0318	-0.4295
		41				6.6598	0.5492	-10.7867	0.019	0.0896	0.0546	11.1474	-0.4508	-2.2778	0.019	0.0896	-0.1279	29.9	-17.7598	-0.0474
		42				6.3993	0.5345	-10.7699	0.0191	0.0899	0.0535	11.7768	-0.4655	-2.0535	0.0191	0.0899	-0.1334	29.9	-18.4993	**0.3232**
TPS Serena	14	9	23.32	31	0.5	5.9945	0.9961	-1.8899	0.0038	0.0012	0.0398	0.004	-0.0039	-0.0221	0.0038	0.0012	-0.0003	13	-1.9945	-4.004
		19				0.3622	0.2261	-1.5769	0.098	0.0298	0.014	3.271	-0.7739	2.3663	0.098	0.0298	-0.0705	13	-6.3622	2.729
		10				5.1178	0.9852	-2.1377	0.0122	0.0037	0.0434	0.0173	-0.0148	-0.0624	0.0122	0.0037	-0.0011	13	-2.1178	-3.0173
		11				4.2657	0.9592	-2.4055	0.0285	0.0087	0.0458	0.055	-0.0408	-0.1227	0.0285	0.0087	-0.0031	13	-2.2657	-2.055
		12				3.46	0.9106	-2.6619	0.0526	0.016	0.0464	0.1393	-0.0894	-0.1715	0.0526	0.016	-0.007	13	-2.46	-1.1393
		13				2.7256	0.8364	-2.8526	0.0805	0.0244	0.0449	0.2948	-0.1636	-0.1547	0.0805	0.0244	-0.0129	13	-2.7256	-0.2948
		14				2.0838	0.7394	-2.9247	0.1058	0.0321	0.0413	0.5429	-0.2606	-0.0192	0.1058	0.0321	-0.021	13	-3.0838	**0.4571**
Uchumi Supermark	40.6	**28**	23.32	31	0.5	15.713	0.9903	-5.9431	0.0029	0.0075	0.1225	0.0314	-0.0097	-0.1322	0.0029	0.0075	-0.0021	45.5	**1.787**	-17.5314
		38				7.6984	0.8273	-8.3124	0.0287	0.0734	0.1294	0.9162	-0.1727	-0.4261	0.0287	0.0734	-0.0396	45.5	-0.1984	-8.4162
		48				2.6741	0.4513	-7.1736	0.0445	0.1137	0.0783	4.7912	-0.5487	2.7881	0.0445	0.1137	-0.1353	45.5	-5.1741	-2.2912
		58				0.6924	0.1622	-3.5583	0.0276	0.0705	0.0295	11.709	-0.8378	8.4787	0.0276	0.0705	-0.2286	45.5	-13.1924	0.791
		68				0.1465	0.0435	-1.1989	0.0104	0.0265	0.0081	20.0625	-0.9565	12.9134	0.0104	0.0265	-0.2945	45.5	-22.6465	2.4375
		33				11.4644	0.9437	-7.2696	0.0127	0.0325	0.1343	0.2325	-0.0563	-0.4209	0.0127	0.0325	-0.0126	45.5	**1.0356**	-12.7325
		34				10.6609	0.9266	-7.5261	0.0156	0.04	0.1348	0.3189	-0.0734	-0.4699	0.0156	0.04	-0.0165	45.5	**0.8391**	-11.8189
		35				9.8796	0.9064	-7.7657	0.0188	0.048	0.1346	0.4276	-0.0936	-0.502	0.0188	0.048	-0.0211	45.5	**0.6204**	-10.9276
		36				9.1236	0.883	-7.9813	0.0221	0.0564	0.1336	0.5615	-0.117	-0.51	0.0221	0.0564	-0.0266	45.5	**0.3764**	-10.0615
		37				8.3957	0.8566	-8.1656	0.0254	0.0649	0.1319	0.7236	-0.1434	-0.4869	0.0254	0.0649	-0.0327	45.5	**0.1043**	-9.2236
		57				0.801	0.1824	-3.8948	0.0297	0.076	0.033	10.9276	-0.8176	7.9347	0.0297	0.076	-0.2206	45.5	-12.301	0.5724
		56				0.9247	0.2045	-4.2461	0.0319	0.0815	0.0369	10.1614	-0.7955	7.3758	0.0319	0.0815	-0.2123	45.5	-11.4247	0.3386

	55	1.0651	0.2286	-4.6098	0.034	0.0869	0.0411	9.4119	-0.7714	6.8046	0.034	0.0869	-0.2036	45.5	-10.5651	**0.0881**
	54	1.2241	0.2547	-4.9828	0.0361	0.0921	0.0456	8.6809	-0.7453	6.2241	0.0361	0.0921	-0.1947	45.5	-9.7241	-0.1809

1.4296
0.8873
-3.1268
0.1576
0.0211
0.0621

0.0686
-0.1127
0.1938
0.1576
0.0211
-0.0091

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JANUARY TO JUNE 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.98*	*Value of European call option*	*Value of European put option*
Barclays Bank	116	71	23.3	38	0.5	52.9079	0.9917	-15.1944	0.0007	0.0186	0.3106	0.0937	-0.0083	-0.4595	0.0007	0.0186	-0.0053	101.5	-22.4079	-30.5937
		81				44.2898	0.9716	-17.9809	0.0021	0.0533	0.3421	0.3751	-0.0284	-1.1706	0.0021	0.0533	-0.0183	101.5	-23.7898	-20.8751
		91				36.1032	0.9294	-20.9339	0.0043	0.1108	0.3586	1.0879	-0.0706	-2.0483	0.0043	0.1108	-0.0464	101.5	-25.6032	-11.5879
		101				28.6173	0.8607	-23.5231	0.0071	0.1819	0.3561	2.5013	-0.1393	-2.5622	0.0071	0.1819	-0.0933	101.5	-28.1173	-3.0013
		111				22.0611	0.768	-25.141	0.0098	0.2503	0.3351	4.8445	-0.232	-2.1047	0.0098	0.2503	-0.1588	101.5	-31.5611	4.6555
		102				27.9168	0.8524	-23.7375	0.0074	0.1892	0.3548	2.6908	-0.1476	-2.569	0.0074	0.1892	-0.099	101.5	-28.4168	-2.1908
		103				27.2258	0.8439	-23.9414	0.0077	0.1964	0.3533	2.8898	-0.1561	-2.5654	0.0077	0.1964	-0.105	101.5	-28.7258	-1.3898
		104				26.5446	0.8351	-24.1343	0.008	0.2035	0.3517	3.0985	-0.1649	-2.5507	0.008	0.2035	-0.1111	101.5	-29.0446	-0.5985
		105				25.8734	0.8262	-24.3158	0.0082	0.2106	0.3498	3.3172	-0.1738	-2.5247	0.0082	0.2106	-0.1174	101.5	-29.3734	**0.1828**
City Trust Ltd	34	9	23.3	77	0.5	26.0012	0.9983	-1.9535	0.0003	0.0013	0.0397	0.0107	-0.0017	-0.0857	0.0003	0.0013	-0.0003	31.6	-3.4012	-22.6107
		16				20.0328	0.9693	-4.2973	0.0037	0.0167	0.0646	0.2719	-0.0307	-0.9767	0.0037	0.0167	-0.0066	31.6	-4.4328	-15.8719
		26				12.9736	0.8362	-8.1779	0.0133	0.0594	0.0773	2.112	-0.1638	-2.782	0.0133	0.0594	-0.0384	31.6	-7.3736	-7.712
		36				8.1067	0.6486	-10.1189	0.02	0.0892	0.0697	6.1446	-0.3514	-2.6476	0.02	0.0892	-0.0905	31.6	-12.5067	-1.7446
		46				5.0207	0.4726	-9.9439	0.0215	0.0957	0.0552	11.958	-0.5274	-0.3974	0.0215	0.0957	-0.1495	31.6	-19.4207	2.442
		37				7.7282	0.6297	-10.182	0.0204	0.0908	0.0684	6.656	-0.3703	-2.5032	0.0204	0.0908	-0.0962	31.6	-13.1282	-1.256
		38				7.3669	0.6111	-10.2242	0.0207	0.0922	0.067	7.1847	-0.3889	-2.3379	0.0207	0.0922	-0.102	31.6	-13.7669	-0.7847
		39				7.0222	0.5927	-10.2466	0.021	0.0933	0.0656	7.7299	-0.4073	-2.1528	0.021	0.0933	-0.1079	31.6	-14.4222	-0.3299
		40				6.6935	0.5745	-10.2504	0.0212	0.0942	0.0642	8.2911	-0.4255	-1.949	0.0212	0.0942	-0.1138	31.6	-15.0935	**0.1089**
CFC Bank	17.4	**12**	23.3	24	0.5	6.7221	0.9985	-2.4986	0.0017	0.0006	0.0533	0.0014	-0.0015	-0.0082	0.0017	0.0006	-0.0001	16.9	-1.8221	-4.9014
		22				0.4503	0.2708	-1.9718	0.1121	0.0407	0.0213	2.629	-0.7292	2.594	0.1121	0.0407	-0.0766	16.9	-5.5503	2.471
		13				5.8372	0.9936	-2.7236	0.0061	0.0022	0.0573	0.0064	-0.0064	-0.0257	0.0061	0.0022	-0.0006	16.9	-1.9372	-3.9064
		14				4.9639	0.98	-2.962	0.0164	0.006	0.0604	0.023	-0.02	-0.0565	0.0164	0.006	-0.0019	16.9	-2.0639	-2.923
		15				4.1165	0.9502	-3.1992	0.0348	0.0127	0.0621	0.0656	-0.0498	-0.0862	0.0348	0.0127	-0.0047	16.9	-2.2165	-1.9656
		16				3.3163	0.8973	-3.396	0.0606	0.022	0.0615	0.1553	-0.1027	-0.0754	0.0606	0.022	-0.0097	16.9	-2.4163	-1.0553
		17				2.5875	0.8183	-3.4964	0.0894	0.0325	0.0583	0.3165	-0.1817	0.0316	0.0894	0.0325	-0.0174	16.9	-2.6875	-0.2165
		18				1.9516	0.7164	-3.4519	0.1147	0.0417	0.0526	0.5705	-0.2836	0.2837	0.1147	0.0417	-0.0275	16.9	-3.0516	**0.5295**
Diamond Trust Banl	22.1	16	23.3	20	0.5	7.8616	0.9993	-3.3246	0.0008	0.0004	0.0711	0.0006	-0.0007	-0.004	0.0008	0.0004	-0.0001	22	-1.8616	-6.0006
		26				0.8224	0.3998	-3.0757	0.1236	0.0604	0.0401	1.8608	-0.6002	2.3202	0.1236	0.0604	-0.0756	22	-4.8224	2.1392
		18				6.0915	0.9905	-3.7638	0.0081	0.004	0.079	0.0104	-0.0095	-0.0282	0.0081	0.004	-0.0011	22	-2.0915	-4.0104
		19				5.2218	0.9752	-3.9896	0.0186	0.0091	0.0817	0.0307	-0.0248	-0.0464	0.0186	0.0091	-0.0029	22	-2.2218	-3.0307
		20				4.3777	0.9453	-4.1971	0.0354	0.0173	0.0826	0.0765	-0.0547	-0.0464	0.0354	0.0173	-0.0064	22	-2.3777	-2.0765
		21				3.5771	0.8955	-4.3473	0.058	0.0283	0.0811	0.1658	-0.1045	0.0109	0.058	0.0283	-0.0124	22	-2.5771	-1.1658
		22				2.8405	0.8231	-4.3908	0.083	0.0406	0.0768	0.3192	-0.1769	0.1749	0.083	0.0406	-0.0211	22	-2.8405	-0.3192
		23				2.1873	0.73	-4.2857	0.1058	0.0517	0.0697	0.556	-0.27	0.4876	0.1058	0.0517	-0.0326	22	-3.1873	**0.444**
Housing Finance Cc	15.3	10	23.3	32	0.5	6.4078	0.9939	-2.1115	0.005	0.0019	0.044	0.0073	-0.0061	-0.0361	0.005	0.0019	-0.0005	16	-0.4078	-6.0073
of Kenya		20				0.5605	0.2893	-2.0852	0.0988	0.037	0.0193	3.0593	-0.7107	2.0655	0.0988	0.037	-0.0697	16	-4.5605	0.9407
		19				0.7848	0.3712	-2.4498	0.1092	0.0409	0.0245	2.3937	-0.6288	1.4934	0.1092	0.0409	-0.0601	16	-3.7848	0.6063
		18				1.0799	0.4642	-2.7801	0.1148	0.043	0.0301	1.7989	-0.5358	0.9555	0.1148	0.043	-0.05	16	-3.0799	**0.2011**
		17				1.4577	0.5647	-3.0377	0.1137	0.0426	0.0359	1.2867	-0.4353	0.4904	0.1137	0.0426	-0.0397	16	-2.4577	-0.2867
ICDC Investments	35.1	27	23.3	37	0.5	11.3202	0.9429	-6.1305	0.0125	0.0285	0.1089	0.2486	-0.0571	-0.527	0.0125	0.0285	-0.0113	39.1	**0.7798**	-12.3486
Co Ltd		37				4.7306	0.6462	-7.6007	0.0405	0.0923	0.0897	2.5584	-0.3538	0.078	0.0405	0.0923	-0.0749	39.1	-2.6306	-4.6584

		47				1.4988	0.2948	-5.2311	0.0376	0.0856	0.0442	8.226	-0.7052	4.523	0.0376	0.0856	-0.1649	39.1	-9.3988	-0.326
		57				0.3957	0.1009	-2.3549	0.0192	0.0438	0.0157	16.0224	-0.8991	9.4746	0.0192	0.0438	-0.2379	39.1	-18.2957	1.8776
		28				10.5248	0.9251	-6.4164	0.0154	0.0351	0.1097	0.3432	-0.0749	-0.6055	0.0154	0.0351	-0.0149	39.1	0.5752	-11.4432
		29				9.7536	0.9043	-6.6882	0.0185	0.0422	0.1099	0.4619	-0.0957	-0.6697	0.0185	0.0422	-0.0191	39.1	0.3464	-10.5619
		30				9.0095	0.8803	-6.9382	0.0217	0.0496	0.1094	0.6078	-0.1197	-0.7122	0.0217	0.0496	-0.024	39.1	**0.0905**	-9.7078
		31				8.2951	0.8534	-7.1594	0.025	0.057	0.1083	0.7833	-0.1466	-0.7259	0.025	0.057	-0.0296	39.1	-0.1951	-8.8833
		48				1.3207	0.2677	-4.9062	0.0358	0.0817	0.0404	8.9379	-0.7323	5.0554	0.0358	0.0817	-0.1732	39.1	-10.2207	-0.0379
		49				1.1618	0.2424	-4.5832	0.034	0.0776	0.0367	9.6689	-0.7576	5.586	0.034	0.0776	-0.1813	39.1	-11.0618	**0.2311**
Jubilee Insurance Co Ltd	31	**24**	23.3	19	0.5	9.6443	0.9977	-4.9933	0.0017	0.0015	0.1064	0.0029	-0.0023	-0.0125	0.0017	0.0015	-0.0004	30.2	-3.4443	-6.2029
		34				2.038	0.5977	-5.4573	0.0929	0.0848	0.0825	1.296	-0.4023	1.5988	0.0929	0.0848	-0.0688	30.2	-5.838	2.504
		25				8.7592	0.9944	-5.2127	0.0038	0.0035	0.1103	0.0078	-0.0056	-0.0243	0.0038	0.0035	-0.0009	30.2	-3.5592	-5.2078
		26				7.8803	0.9876	-5.4357	0.0077	0.007	0.1137	0.0187	-0.0124	-0.0398	0.0077	0.007	-0.002	30.2	-3.6803	-4.2187
		27				7.0125	0.9752	-5.6564	0.0139	0.0127	0.1161	0.0409	-0.0248	-0.053	0.0139	0.0127	-0.004	30.2	-3.8125	-3.2409
		28				6.1632	0.9547	-5.8614	0.0229	0.0209	0.1172	0.0816	-0.0453	-0.0504	0.0229	0.0209	-0.0074	30.2	-3.9632	-2.2816
		29				5.3421	0.9238	-6.0293	0.0344	0.0314	0.1165	0.1504	-0.0762	-0.0108	0.0344	0.0314	-0.0126	30.2	-4.1421	-1.3504
		30				4.5604	0.8808	-6.1333	0.0478	0.0436	0.1137	0.2586	-0.1192	0.0928	0.0478	0.0436	-0.0198	30.2	-4.3604	-0.4586
		31				3.8296	0.8251	-6.145	0.0619	0.0565	0.1087	0.4178	-0.1749	0.2885	0.0619	0.0565	-0.0292	30.2	-4.6296	**0.3822**
KCB Ltd	79.1	54	23.3	23	0.5	31.0462	0.9992	-11.2273	0.0002	0.0016	0.2399	0.003	-0.0008	-0.0205	0.0002	0.0016	-0.0003	70	-15.0462	-16.003
		64				22.2315	0.9822	-13.4977	0.0034	0.0246	0.2773	0.0877	-0.0178	-0.2155	0.0034	0.0246	-0.0075	70	-16.2315	-6.0877
		74				14.0065	0.8865	-15.5599	0.0149	0.1076	0.2806	0.7621	-0.1135	-0.2024	0.0149	0.1076	-0.0487	70	-18.0065	3.2379
		65				21.3677	0.9775	-13.7359	0.0042	0.0299	0.2798	0.1139	-0.0225	-0.2462	0.0042	0.0299	-0.0095	70	-16.3677	-5.1139
		66				20.5101	0.972	-13.973	0.005	0.0359	0.2819	0.1462	-0.028	-0.2757	0.005	0.0359	-0.0118	70	-16.5101	-4.1462
		67				19.6597	0.9656	-14.2072	0.0059	0.0427	0.2836	0.1857	-0.0344	-0.3024	0.0059	0.0427	-0.0146	70	-16.6597	-3.1857
		68				18.8175	0.958	-14.4364	0.007	0.0501	0.2848	0.2335	-0.042	-0.3241	0.007	0.0501	-0.0178	70	-16.8175	-2.2335
		69				17.9848	0.9493	-14.6584	0.0081	0.0583	0.2855	0.2907	-0.0507	-0.3385	0.0081	0.0583	-0.0215	70	-16.9848	-1.2907
		70				17.1627	0.9394	-14.8704	0.0093	0.0671	0.2857	0.3586	-0.0606	-0.343	0.0093	0.0671	-0.0258	70	-17.1627	-0.3586
		71				16.3525	0.9282	-15.0696	0.0106	0.0766	0.2853	0.4383	-0.0718	-0.3346	0.0106	0.0766	-0.0306	70	-17.3525	**0.5617**
National Bank Ltd	12.6	4	23.3	60	0.5	9.0414	0.9993	-0.8409	0.0005	0.0002	0.0177	0.0011	-0.0007	-0.0108	0.0005	0.0002	-0.0001	12.8	-0.2414	-8.8011
		14				2.1761	0.5943	-3.3116	0.0725	0.0345	0.0266	2.0352	-0.4057	-0.4061	0.0725	0.0345	-0.0357	12.8	-3.3761	-0.8352
		15				1.825	0.5303	-3.2591	0.0744	0.0354	0.0243	2.5741	-0.4697	-0.1461	0.0744	0.0354	-0.0425	12.8	-4.025	-0.3741
		16				1.5264	0.4697	-3.1505	0.0744	0.0354	0.022	3.1654	-0.5303	0.17	0.0744	0.0354	-0.0492	12.8	-4.7264	**0.0346**
NIC Bank Ltd	40.4	15	23.3	54	0.5	27.0556	0.999	-3.1543	0.0002	0.001	0.0665	0.0047	-0.001	-0.0413	0.0002	0.001	-0.0002	33.1	-8.9556	-18.1047
		25				18.4383	0.9602	-6.0701	0.0056	0.0245	0.1018	0.2868	-0.0398	-0.8817	0.0056	0.0245	-0.0095	33.1	-10.3383	-8.3868
		35				11.2297	0.8084	-9.2051	0.0177	0.0779	0.1072	1.9776	-0.1916	-1.9414	0.0177	0.0779	-0.0486	33.1	-13.1297	-0.0776
		45				6.2682	0.5847	-10.0617	0.0253	0.1114	0.0868	5.9156	-0.4153	-0.7227	0.0253	0.1114	-0.1135	33.1	-18.1682	5.9844
		36				10.6292	0.7876	-9.4169	0.0188	0.0829	0.106	2.2671	-0.2124	-1.9457	0.0188	0.0829	-0.0542	33.1	-13.5292	**0.6329**
Pan Africa Ins Co	27.8	**16**	23.3	18	0.5	13.5609	1	-3.3205	0	0	0.0712	0	0	0	0	0	0	20	-9.5609	-4
		26				4.7692	0.9339	-5.3968	0.0363	0.0252	0.106	0.1077	-0.0661	-0.0009	0.0363	0.0252	-0.0097	20	-10.7692	5.8923
		17				12.671	1	-3.5281	0	0	0.0756	0	0	0	0	0	0	20	-9.671	-3
		18				11.7811	1	-3.7357	0	0	0.0801	0	0	-0.0001	0	0	0	20	-9.7811	-2
		19				10.8911	1	-3.9434	0	0	0.0845	0	0	-0.0003	0	0	0	20	-9.8911	-1
		20				10.0013	0.9998	-4.1519	0.0002	0.0001	0.089	0.0002	-0.0002	-0.0012	0.0002	0.0001	0	20	-10.0013	-0.0002
		21				9.112	0.9993	-4.3622	0.0007	0.0005	0.0933	0.0007	-0.0007	-0.004	0.0007	0.0005	-0.0001	20	-10.112	**0.9993**

Standard Chartered Bank Ltd	47.6	**30**	23.3	34	0.5	20.9246	0.9942	-6.3448	0.0014	0.0055	0.132	0.0228	-0.0058	-0.1187	0.0014	0.0055	-0.0015	42.1	-8.8246	-12.1228
		40				12.5453	0.908	-9.0423	0.0144	0.0555	0.1534	0.5429	-0.092	-0.7409	0.0144	0.0555	-0.0246	42.1	-10.4453	-2.6429
		50				6.1286	0.6556	-10.062	0.0322	0.1239	0.1254	3.0257	-0.3444	0.3147	0.0322	0.1239	-0.0971	42.1	-14.0286	4.8743
		41				11.7888	0.8899	-9.2822	0.0164	0.0633	0.1529	0.6764	-0.1101	-0.7733	0.0164	0.0633	-0.0296	42.1	-10.6888	-1.7764
		42				11.0545	0.8699	-9.5005	0.0185	0.0712	0.1518	0.8321	-0.1301	-0.784	0.0185	0.0712	-0.0351	42.1	-10.9545	-0.9321
		43				10.344	0.848	-9.6927	0.0206	0.0792	0.1501	1.0115	-0.152	-0.7687	0.0206	0.0792	-0.0412	42.1	-11.244	-0.1115
		44				9.6587	0.8244	-9.8551	0.0226	0.0869	0.1479	1.2161	-0.1756	-0.7235	0.0226	0.0869	-0.0479	42.1	-11.5587	**0.6839**

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JANUARY TO JUNE 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.98*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	9.2	4	23.32	48	0.5	5.6417	0.9985	-0.8418	0.0016	0.0003	0.0177	0.0015	-0.0015	-0.0117	0.0016	0.0003	-0.0001	9	-0.6417	-5.0015
		14				0.3661	0.2346	-1.3766	0.0983	0.02	0.009	3.6253	-0.7654	1.5288	0.0983	0.02	-0.0533	9	-5.3661	1.3747
		13				0.5176	0.3066	-1.6335	0.1124	0.0228	0.0115	2.8868	-0.6934	1.0644	0.1124	0.0228	-0.0463	9	-4.5176	1.1132
		12				0.7255	0.3937	-1.8768	0.1232	0.025	0.0145	2.2048	-0.6063	0.6136	0.1232	0.025	-0.0389	9	-3.7255	0.7952
		11				1.0059	0.4947	-2.0724	0.1277	0.026	0.0177	1.5953	-0.5053	0.2104	0.1277	0.026	-0.0312	9	-3.0059	**0.4047**
		10				1.3756	0.6055	-2.1802	0.1233	0.025	0.021	1.075	-0.3945	-0.1048	0.1233	0.025	-0.0235	9	-2.3756	-0.075
Bamburi Cement Ltd	37	18	23.32	46	0.5	20.9935	0.9969	-3.8195	0.0008	0.0025	0.0795	0.0125	-0.0031	-0.0839	0.0008	0.0025	-0.0006	35.1	-3.8935	-17.1125
		28				12.6138	0.9159	-6.8191	0.0128	0.0404	0.1064	0.5321	-0.0841	-1.0082	0.0128	0.0404	-0.0182	35.1	-5.5138	-7.6321
		38				6.3378	0.6697	-8.6605	0.0301	0.0948	0.0922	3.1556	-0.3303	-0.7742	0.0301	0.0948	-0.0769	35.1	-9.2378	-0.2556
		48				2.7799	0.3901	-7.3354	0.0319	0.1004	0.0583	8.4971	-0.6099	2.6263	0.0319	0.1004	-0.1553	35.1	-15.6799	4.4029
		39				5.8667	0.6403	-8.6578	0.0311	0.0979	0.0891	3.5744	-0.3597	-0.564	0.0311	0.0979	-0.0844	35.1	-9.7667	**0.3256**
BAT Ltd	65.5	63	23.32	9	0.5	9.4429	0.9933	-13.0486	0.0045	0.0086	0.2781	0.0092	-0.0067	0.0261	0.0045	0.0086	-0.0022	67.5	-4.9429	-4.5092
		73				1.9367	0.5638	-9.8013	0.0945	0.1824	0.1749	1.4024	-0.4362	5.3487	0.0945	0.1824	-0.1499	67.5	-7.4367	4.0976
		67				5.9969	0.9343	-13.4051	0.0307	0.0592	0.276	0.1229	-0.0657	0.4997	0.0307	0.0592	-0.0221	67.5	-5.4969	-0.6229
		68				5.1893	0.8989	-13.2578	0.0424	0.0819	0.2684	0.2053	-0.1011	0.8545	0.0424	0.0819	-0.0341	67.5	-5.6893	**0.2947**
BOC Gases Ltd	37	19	23.32	46	0.5	20.1125	0.9949	-4.0709	0.0012	0.0038	0.0835	0.0214	-0.0051	-0.1277	0.0012	0.0038	-0.001	35.1	-4.0125	-16.1214
		29				11.8654	0.898	-7.1243	0.0148	0.0466	0.1068	0.6737	-0.102	-1.1058	0.0148	0.0466	-0.0222	35.1	-5.7654	-6.7737
		39				5.8667	0.6403	-8.6578	0.0311	0.0979	0.0891	3.5744	-0.3597	-0.564	0.0311	0.0979	-0.0844	35.1	-9.7667	**0.3256**
		38				6.3378	0.6697	-8.6605	0.0301	0.0948	0.0922	3.1556	-0.3303	-0.7742	0.0301	0.0948	-0.0769	35.1	-9.2378	-0.2556
		37				6.8374	0.6989	-8.6272	0.0289	0.0911	0.0951	2.7653	-0.3011	-0.9484	0.0289	0.0911	-0.0695	35.1	-8.7374	-0.8653
Carbacid Investment	50	40	23.32	34	0.5	14.7618	0.9374	-8.9678	0.0102	0.0435	0.1605	0.3594	-0.0626	-0.6664	0.0102	0.0435	-0.0174	44.9	-9.8618	-5.2594
		50				7.7906	0.7275	-10.6587	0.0276	0.1174	0.1429	2.2876	-0.2725	-0.282	0.0276	0.1174	-0.0796	44.9	-12.8906	2.8124
		46				10.2931	0.8295	-10.3192	0.0211	0.0897	0.1559	1.2304	-0.1705	-0.7727	0.0211	0.0897	-0.0488	44.9	-11.3931	-0.1304
		47				9.628	0.8058	-10.4564	0.0229	0.0972	0.1533	1.4552	-0.1942	-0.7023	0.0229	0.0972	-0.0558	44.9	-11.728	**0.6448**
Crown Berger Ltd	10	5	23.32	44	0.5	5.5533	0.9971	-1.0579	0.0029	0.0006	0.0221	0.003	-0.0029	-0.0202	0.0029	0.0006	-0.0002	9.4	-1.1533	-4.403
		15				0.34	0.2198	-1.354	0.0951	0.0209	0.0093	3.6891	-0.7802	1.759	0.0951	0.0209	-0.0575	9.4	-5.94	1.9109
		10				1.7988	0.7021	-2.2961	0.1114	0.0245	0.0261	0.6982	-0.2979	-0.2208	0.1114	0.0245	-0.0184	9.4	-2.3988	-0.0982
		11				1.3314	0.5886	-2.2726	0.125	0.0275	0.0228	1.1207	-0.4114	0.0102	0.125	0.0275	-0.0262	9.4	-2.9314	**0.4793**
Dunlop Kenya Ltd	20	**6**	23.32	72	0.5	14.668	0.9978	-1.3035	0.0007	0.001	0.0264	0.0076	-0.0022	-0.0583	0.0007	0.001	-0.0003	30.8	**10.132**	-24.8076
		16				7.0347	0.8217	-4.8478	0.0256	0.0369	0.047	1.2738	-0.1783	-1.5273	0.0256	0.0369	-0.0242	30.8	**7.7653**	-16.0738
		26				2.9371	0.4873	-5.6481	0.0392	0.0564	0.034	6.0755	-0.5127	-0.2522	0.0392	0.0564	-0.0242	30.8	**1.8629**	-10.8755
		36				1.2104	0.2511	-4.1324	0.0313	0.045	0.0191	13.2483	-0.7489	3.3388	0.0313	0.045	-0.1411	30.8	-6.4104	-8.0483
		46				0.5141	0.1246	-2.5523	0.0202	0.029	0.0099	21.4514	-0.8754	6.9943	0.0202	0.029	-0.1948	30.8	-15.7141	-6.2514
		28				2.4572	0.4296	-5.4296	0.0386	0.0555	0.0307	7.3756	-0.5704	0.3814	0.0386	0.0555	-0.0939	30.8	**0.3428**	-10.1756
		29				2.2477	0.4027	-5.2951	0.038	0.0547	0.029	8.0559	-0.5973	0.7234	0.038	0.0547	-0.1	30.8	-0.4477	-9.8559
E A Cables Ltd	29	16	23.32	29	0.5	14.7612	0.9998	-3.3233	0.0001	0.0001	0.0712	0.0003	-0.0002	-0.0028	0.0001	0.0001	0	22.1	-8.6612	-6.1003

		26				6.224	0.8856	-5.6877	0.0325	0.0396	0.0973	0.3624	-0.1144	-0.2918	0.0325	0.0396	-0.0184	22.1	-10.124	3.5376
		20				11.2146	0.9935	-4.2122	0.0031	0.0037	0.088	0.0134	-0.0065	-0.0616	0.0031	0.0037	-0.001	22.1	-9.1146	-2.1134
		21				10.3385	0.9876	-4.4589	0.0054	0.0066	0.0915	0.0273	-0.0124	-0.1007	0.0054	0.0066	-0.0019	22.1	-9.2385	-1.1273
		22				9.4729	0.9782	-4.7159	0.0088	0.0107	0.0945	0.0516	-0.0218	-0.1501	0.0088	0.0107	-0.0034	22.1	-9.3729	-0.1516
		23				8.6226	0.9642	-4.978	0.0132	0.0161	0.0967	0.0912	-0.0358	-0.2048	0.0132	0.0161	-0.0056	22.1	-9.5226	**0.8088**
E A Packaging Ltd	49	18	23.32	43	0.5	32.9813	0.9999	-3.7387	0	0.0001	0.0801	0.0002	-0.0001	-0.0031	0	0.0001	0	20	-30.9813	-2.0002
		28				24.1297	0.9912	-6.0531	0.0016	0.0082	0.1222	0.048	-0.0088	-0.2421	0.0016	0.0082	-0.0024	20	-32.1297	7.952
		20				31.2022	0.9998	-4.1614	0.0001	0.0003	0.0889	0.001	-0.0002	-0.0107	0.0001	0.0003	-0.0001	20	-31.2022	-0.001
		21				30.3131	0.9996	-4.3765	0.0001	0.0006	0.0933	0.0019	-0.0004	-0.0183	0.0001	0.0006	-0.0001	20	-31.3131	**0.9981**
EA Portland Cement	20	**14**	23.32	25	0.5	7.544	0.9972	-2.9223	0.0025	0.0012	0.062	0.0032	-0.0028	-0.0168	0.0025	0.0012	-0.0003	22.1	**0.556**	-8.1032
		24				0.8764	0.3884	-2.9623	0.1084	0.0542	0.0345	2.235	-0.6116	2.0186	0.1084	0.0542	-0.0723	22.1	-2.7764	-0.335
		15				6.6618	0.9912	-3.1536	0.0067	0.0034	0.0658	0.011	-0.0088	-0.0405	0.0067	0.0034	-0.0009	22.1	0.4382	-7.111
		16				5.792	0.9778	-3.3968	0.015	0.0075	0.0688	0.0311	-0.0222	-0.0762	0.015	0.0075	-0.0024	22.1	0.308	-6.1311
		17				4.9459	0.9523	-3.6394	0.0281	0.0141	0.0705	0.0749	-0.0477	-0.1113	0.0281	0.0141	-0.0051	22.1	**0.1541**	-5.1749
		18				4.1388	0.9105	-3.8532	0.0457	0.0229	0.0704	0.1578	-0.0895	-0.1175	0.0457	0.0229	-0.0097	22.1	-0.0388	-4.2578
		19				3.3882	0.8504	-3.999	0.0658	0.0329	0.0681	0.297	-0.1496	-0.0559	0.0658	0.0329	-0.0164	22.1	-0.2882	-3.397
		20				2.7101	0.7728	-4.0385	0.0853	0.0427	0.0637	0.5089	-0.2272	0.1122	0.0853	0.0427	-0.0253	22.1	-0.6101	-2.6089
		25				0.6249	0.3035	-2.5056	0.0989	0.0494	0.0272	2.8734	-0.6965	2.6827	0.0989	0.0494	-0.084	22.1	-3.5249	**0.0266**
Firestone EA Ltd	15.9	11	23.32	29	0.5	6.1183	0.9932	-2.3178	0.0058	0.0021	0.0484	0.0077	-0.0068	-0.0349	0.0058	0.0021	-0.0006	17.1	-0.0183	-6.1077
		21				0.4326	0.2465	-1.8415	0.0967	0.0355	0.0174	3.2213	-0.7535	2.5168	0.0967	0.0355	-0.076	17.1	-4.3326	0.6787
		16				2.2342	0.7391	-3.2789	0.0997	0.0365	0.0476	0.5733	-0.2609	0.0416	0.0997	0.0365	-0.0236	17.1	-1.1342	-1.6733
		17				1.6894	0.6349	-3.1859	0.1153	0.0423	0.042	0.9184	-0.3651	0.3422	0.1153	0.0423	-0.0336	17.1	-1.5894	-1.0184
		18				1.2447	0.5264	-2.9594	0.1221	0.0448	0.0356	1.3636	-0.4736	0.7762	0.1221	0.0448	-0.0445	17.1	-2.1447	-0.4636
		19				0.8948	0.4217	-2.6307	0.12	0.044	0.0291	1.9037	-0.5783	1.3125	0.12	0.044	-0.0555	17.1	-2.7948	-0.0037
		20				0.6287	0.3272	-2.2434	0.1107	0.0406	0.0229	2.5276	-0.6728	1.9073	0.1107	0.0406	-0.0661	17.1	-3.5287	**0.3724**
EABL	48	**37**	23.32	36	0.5	15.3804	0.9461	-8.3416	0.009	0.0372	0.1502	0.3082	-0.0539	-0.6628	0.009	0.0372	-0.0145	54.8	**2.4196**	-18.1082
		47				8.2798	0.7479	-10.341	0.0261	0.1083	0.1381	2.1071	-0.2521	-0.5869	0.0261	0.1083	-0.071	54.8	-0.4798	-9.9071
		57				3.7529	0.4642	-9.1763	0.0325	0.1349	0.0927	6.4795	-0.5358	2.6531	0.0325	0.1349	-0.161	54.8	-5.9529	-4.2795
		67				1.4849	0.2343	-6.0251	0.0251	0.1041	0.0488	13.111	-0.7657	7.8797	0.0251	0.1041	-0.2493	54.8	-13.6849	-0.911
		77				0.534	0.1018	-3.188	0.0146	0.0604	0.0218	21.0595	-0.8982	12.7921	0.0146	0.0604	-0.3209	54.8	-22.734	1.1405
		44				10.1632	0.8231	-10.0147	0.0212	0.0881	0.1467	1.3206	-0.1769	-0.8832	0.0212	0.0881	-0.0491	54.8	0.6368	-12.1206
		45				9.5091	0.7992	-10.1574	0.023	0.0952	0.1443	1.5564	-0.2008	-0.8184	0.023	0.0952	-0.056	54.8	**0.2909**	-11.3564
		46				8.8811	0.7741	-10.2668	0.0246	0.102	0.1414	1.8184	-0.2259	-0.7202	0.0246	0.102	-0.0633	54.8	-0.0811	-10.6184
		72				0.8991	0.1568	-4.4805	0.0197	0.0815	0.0331	16.9749	-0.8432	10.462	0.0197	0.0815	-0.2872	54.8	-18.0991	0.2251
		71				0.9957	0.1704	-4.7721	0.0207	0.086	0.0359	16.1815	-0.8296	9.9628	0.0207	0.086	-0.28	54.8	-17.1957	**0.0185**
		70				1.1018	0.1849	-5.0734	0.0218	0.0906	0.0389	15.3976	-0.8151	9.454	0.0218	0.0906	-0.2726	54.8	-16.3018	-0.1976
Kenya National Mills	14.9	**6**	23.32	58	0.5	9.5675	0.9966	-1.2942	0.0017	0.0011	0.0264	0.0072	-0.0034	-0.049	0.0017	0.0011	-0.0003	24.3	**8.7325**	-18.3072
		16				2.7119	0.6239	-3.8547	0.0621	0.04	0.0329	2.051	-0.3761	-0.5342	0.0621	0.04	-0.0383	24.3	**5.5881**	-10.351
		26				0.5434	0.1927	-2.2152	0.0448	0.0288	0.0116	8.7818	-0.8073	3.1807	0.0448	0.0288	-0.1041	24.3	-2.2434	-7.0818
		22				1.0477	0.3225	-3.0685	0.0587	0.0378	0.0188	5.7264	-0.6775	1.4973	0.0587	0.0378	-0.0791	24.3	1.2523	-8.0264
		23				0.8898	0.2846	-2.8548	0.0555	0.0357	0.0168	6.4584	-0.7154	1.9185	0.0555	0.0357	-0.0856	24.3	**0.4102**	-7.7584
		24				0.7552	0.2505	-2.6382	0.0521	0.0335	0.0149	7.2137	-0.7495	2.3427	0.0521	0.0335	-0.0919	24.3	-0.4552	-7.5137

Kenya Oil Co Ltd	49.5	**39**	23.32	22	0.5	14.8171	0.9909	-8.1723	0.0032	0.0086	0.1712	0.0248	-0.0091	-0.0784	0.0032	0.0086	-0.0024	56.1	**2.2829**	-17.1248
		49				6.7377	0.814	-9.8872	0.0348	0.0938	0.1678	0.8449	-0.186	0.2819	0.0348	0.0938	-0.0503	56.1	**0.3623**	-7.9449
		59				1.8828	0.3816	-6.9017	0.0495	0.1334	0.085	4.8893	-0.6184	5.3428	0.0495	0.1334	-0.1775	56.1	-4.7828	-1.9893
		69				0.324	0.0955	-2.333	0.022	0.0594	0.022	12.2299	-0.9045	11.9868	0.022	0.0594	-0.285	56.1	-13.224	0.6701
		50				6.0712	0.7772	-9.8522	0.0387	0.1044	0.162	1.0682	-0.2228	0.5245	0.0387	0.1044	-0.0605	56.1	**0.0288**	-7.1682
		51				5.4425	0.7374	-9.7536	0.0423	0.1141	0.1553	1.3295	-0.2626	0.8307	0.0423	0.1141	-0.0716	56.1	-0.3425	-6.4295
		65				0.6901	0.1778	-3.8962	0.0338	0.0911	0.0406	9.0363	-0.8222	9.5935	0.0338	0.0911	-0.2487	56.1	-9.5901	-0.1363
		66				0.5747	0.1534	-3.459	0.0307	0.0828	0.0351	9.8108	-0.8466	10.2382	0.0307	0.0828	-0.2586	56.1	-10.4747	**0.0892**
		67				0.4767	0.1316	-3.0517	0.0277	0.0747	0.0302	10.6027	-0.8684	10.8531	0.0277	0.0747	-0.2679	56.1	-11.3767	0.2973
KPLC	121.2	83	23.32	27	0.5	47.3617	0.9964	-17.3661	0.0005	0.0092	0.367	0.0269	-0.0036	-0.1408	0.0005	0.0092	-0.0023	129.6	-0.7617	-46.6269
		93				38.5982	0.9818	-19.7815	0.0019	0.0382	0.402	0.1627	-0.0182	-0.4808	0.0019	0.0382	-0.0118	129.6	-1.9982	-36.7627
		103				30.1753	0.9404	-22.2842	0.0051	0.1015	0.419	0.6392	-0.0596	-0.9081	0.0051	0.1015	-0.0393	129.6	-3.5753	-27.2392
		113				22.4635	0.8584	-24.2133	0.0097	0.1922	0.4079	1.8268	-0.1416	-0.7619	0.0097	0.1922	-0.0949	129.6	-5.8635	-18.4268
		123				15.8541	0.7353	-24.6602	0.0141	0.2805	0.3663	4.1168	-0.2647	0.8665	0.0141	0.2805	-0.181	129.6	-9.2541	-10.7168
		133				10.5981	0.5869	-23.1278	0.0168	0.3338	0.3027	7.7603	-0.4131	4.4743	0.0168	0.3338	-0.2891	129.6	-13.9981	-4.3603
		143				6.723	0.4364	-19.8795	0.017	0.3375	0.2308	12.7845	-0.5636	9.7979	0.017	0.3375	-0.4055	129.6	-20.123	0.6155
		140				7.7475	0.4804	-20.9919	0.0172	0.3415	0.2524	11.1393	-0.5196	8.0629	0.0172	0.3415	-0.3706	129.6	-18.1475	-0.7393
		141				7.3934	0.4656	-20.6318	0.0172	0.3406	0.2452	11.6751	-0.5344	8.6305	0.0172	0.3406	-0.3822	129.6	-18.7934	-0.2751
		142				7.0519	0.4509	-20.2607	0.0171	0.3393	0.238	12.2236	-0.5491	9.2091	0.0171	0.3393	-0.3939	129.6	-19.4519	**0.1764**
Total Kenya Ltd	52.5	28	23.32	39	0.5	27.5921	0.9977	-5.8833	0.0005	0.0026	0.1239	0.0104	-0.0023	-0.0723	0.0005	0.0026	-0.0006	41.4	-14.1921	-13.4104
		38				18.9537	0.9584	-8.6012	0.0061	0.033	0.1568	0.2714	-0.0416	-0.7149	0.0061	0.033	-0.0123	41.4	-15.5537	-3.6714
		48				11.493	0.8121	-11.1644	0.0186	0.1001	0.1557	1.7102	-0.1879	-1.2027	0.0186	0.1001	-0.0579	41.4	-18.093	4.8898
		42				15.7599	0.9146	-9.7828	0.0108	0.058	0.1613	0.6375	-0.0854	-1.0664	0.0108	0.058	-0.0256	41.4	-16.3599	-0.0375
		43				15.0005	0.9005	-10.0581	0.0121	0.0649	0.1614	0.768	-0.0995	-1.1342	0.0121	0.0649	-0.03	41.4	-16.6005	**0.832**
Unga Group Ltd	20	9				12.316	0.9553	-2.8508	0.007	0.0133	0.0339	0.3255	-0.0447	-0.983	0.007	0.0133	-0.0061	58.8	37.484	-50.1255
		19				6.5445	0.721	-6.3513	0.025	0.0475	0.0394	3.4534	-0.279	-2.4081	0.025	0.0475	-0.0452	58.8	33.2555	-43.2534
		26				4.2321	0.5473	-6.8878	0.0295	0.056	0.0336	7.3705	-0.4527	-1.4919	0.0295	0.056	-0.0821	58.8	28.5679	-40.1705

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JULY TO DECEMBER 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.98*	*Value of European call option*	*Value of European put option*
Brooke Bond	131.7	109	23.32	23	0.5	34.9098	0.9751	-23.0545	0.0027	0.0543	0.4675	0.2134	-0.0249	-0.4333	0.0027	0.0543	-0.0175	139.6	-4.3098	-30.8134
		119				26.5971	0.9225	-25.2384	0.0068	0.1352	0.4744	0.8001	-0.0775	-0.5418	0.0068	0.1352	-0.0551	139.6	-5.9971	-21.4001
		129				19.1149	0.8227	-26.3764	0.0121	0.2421	0.4462	2.2174	-0.1773	0.3955	0.0121	0.2421	-0.1279	139.6	-8.5149	-12.8174
		139				12.8805	0.6796	-25.5319	0.0167	0.3332	0.3831	4.8823	-0.3204	3.3154	0.0167	0.3332	-0.2354	139.6	-12.2805	-5.4823
		149				8.1216	0.5157	-22.483	0.0186	0.3712	0.299	9.0228	-0.4843	8.4396	0.0186	0.3712	-0.364	139.6	-17.5216	**0.3772**
		148				8.5302	0.5322	-22.8729	0.0186	0.3703	0.3078	8.5415	-0.4678	7.8422	0.0186	0.3703	-0.3508	139.6	-16.9302	-0.1415
Eaagads Ltd	37	26	23.32	30	0.5	13.8906	0.9898	-5.5139	0.0035	0.0071	0.1137	0.0291	-0.0102	-0.118	0.0035	0.0071	-0.002	37	-2.8906	-11.0291
		36				6.0402	0.7837	-7.655	0.0374	0.0767	0.1148	1.0781	-0.2163	-0.1838	0.0374	0.0767	-0.0454	37	-5.0402	-2.0781
		46				1.6884	0.3555	-5.5967	0.0475	0.0974	0.0573	5.6257	-0.6445	3.9499	0.0475	0.0974	-0.1474	37	-10.6884	3.3743
		39				4.3108	0.6582	-7.5557	0.0468	0.0961	0.1002	2.0185	-0.3418	0.5382	0.0468	0.0961	-0.0733	37	-6.3108	-0.0185
		40				3.8179	0.6134	-7.4063	0.0488	0.1001	0.0944	2.4155	-0.3866	0.8951	0.0488	0.1001	-0.0836	37	-6.8179	**0.5845**
		41				3.3666	0.5682	-7.203	0.0501	0.1028	0.0883	2.8542	-0.4318	1.3059	0.0501	0.1028	-0.0942	37	-7.3666	1.1458
George Williamson	141	146	23.32	23	0.5	15.3972	0.7204	-27.8107	0.0147	0.3354	0.4309	4.3286	-0.2796	2.4893	0.0147	0.3354	-0.2188	142	-19.3972	-0.3286
		156				10.1936	0.5701	-25.3754	0.0171	0.3916	0.351	8.0244	-0.4299	7	0.0171	0.3916	-0.3432	142	-24.1936	5.9756
		147				14.8138	0.7061	-27.6614	0.015	0.3434	0.4237	4.6352	-0.2939	2.8462	0.015	0.3434	-0.2304	142	-19.8138	**0.3648**
Kakuzi Ltd	141.9	123	23.32	26	0.5	33.2536	0.9337	-26.5016	0.0049	0.1293	0.4962	0.8163	-0.0663	-0.9749	0.0049	0.1293	-0.0511	140	-16.2536	-17.8163
		133				25.5689	0.8596	-28.3002	0.0085	0.2238	0.482	2.0311	-0.1404	-0.6981	0.0085	0.2238	-0.1098	140	-18.5689	-9.0311
		143				18.849	0.7531	-28.7599	0.0121	0.3168	0.44	4.2106	-0.2469	0.9175	0.0121	0.3168	-0.1963	140	-21.849	-1.2106
		153				13.3072	0.6242	-27.4508	0.0145	0.3807	0.3763	7.5682	-0.3758	4.3019	0.0145	0.3807	-0.3045	140	-26.3072	5.4318
		144				18.2396	0.7409	-28.7112	0.0124	0.3249	0.4345	4.4911	-0.2591	1.1737	0.0124	0.3249	-0.2063	140	-22.2396	-0.4911
		145				17.6422	0.7286	-28.6443	0.0127	0.3326	0.4287	4.7836	-0.2714	1.4482	0.0127	0.3326	-0.2165	140	-22.6422	**0.2164**
Kapchorua Tea Co	75.5	**69**	23.32	22	0.5	14.5471	0.9201	-14.5519	0.0126	0.0793	0.2746	0.453	-0.0799	-0.2321	0.0126	0.0793	-0.0324	95	**11.4529**	-26.453
		79				7.5824	0.704	-14.6859	0.0294	0.1845	0.2279	2.3877	-0.296	1.7093	0.0294	0.1845	-0.1237	95	8.4176	-18.3877
		89				3.1684	0.409	-11.0251	0.0331	0.2074	0.1385	6.8732	-0.591	7.4455	0.0331	0.2074	-0.2575	95	2.8316	-12.8732
		99				1.0703	0.1802	-6.0068	0.0224	0.1402	0.0627	13.6745	-0.8198	14.5391	0.0224	0.1402	-0.2575	95	-5.0703	-9.6745
		109				0.3008	0.0626	-2.4786	0.0105	0.0657	0.0221	21.8044	-0.9374	20.1426	0.0105	0.0657	-0.4629	95	-14.3008	-7.8044
		119				0.0727	0.018	-0.8189	0.0038	0.0236	0.0064	30.4757	-0.982	23.8777	0.0038	0.0236	-0.5231	95	-24.0727	-6.4757
		129				0.0156	0.0044	-0.2276	0.0011	0.007	0.0016	39.318	-0.9956	26.5443	0.0011	0.007	-0.5724	95	-34.0156	-5.318
		92				2.3371	0.3288	-9.491	0.0308	0.1931	0.1124	8.7117	-0.6712	9.6022	0.0308	0.1931	-0.2969	95	**0.6629**	-11.7117
		93				2.1029	0.3041	-8.9715	0.0298	0.1867	0.1043	9.3674	-0.6959	10.3292	0.0298	0.1867	-0.3096	95	-0.1029	-11.3674
Limuru Tea Co	755	**785**	23.32	2	0.5	56.3962	1	%-162.9144	0	0	3.493	0	0	0	0	0	0	760	-81.3962	**25**
		795				47.4969	1	%-164.9895	0	0.0001	3.5375	0	0	0.0003	0	0.0001	0	760	-82.4969	**35**
		805				38.5977	0.9999	%-167.0516	0	0.0021	3.5816	0.0003	-0.0001	0.0135	0	0.0021	-0.0004	760	-83.5977	**44.9997**
		815				29.705	0.9978	%-168.8219	0.0007	0.0373	3.6181	0.007	-0.0022	0.3185	0.0007	0.0373	-0.0084	760	-84.705	**54.993**
		825				20.8941	0.9763	%-167.6141	0.0052	0.2986	3.581	0.0955	-0.0237	3.6016	0.0052	0.2986	-0.09	760	-85.8941	**64.9045**
Rea Vipingo Ltd	6.4	4	23.32	16	0.5	2.8402	1	-0.8301	0	0	0.0178	0	0	0	0	0	0	6	-0.8402	-2
		5				1.9504	0.9995	-1.0382	0.0026	0.0001	0.0222	0.0001	-0.0005	-0.0006	0.0026	0.0001	0	6	-0.9504	-1.0001
		6				1.0757	0.9513	-1.2421	0.1395	0.0046	0.0251	0.0153	-0.0487	0.0031	0.1395	0.0046	-0.0016	6	-1.0757	-0.0153
		7				0.3781	0.616	-1.1078	0.5275	0.0173	0.0178	0.2077	-0.384	0.3449	0.5275	0.0173	-0.0133	6	-1.3781	**0.7923**

Sasini Tea & Coffee	75.1	42	23.32	44	0.5	37.7931	0.9918	-9.0812	0.001	0.0119	0.1834	0.0706	-0.0082	-0.3648	0.001	0.0119	-0.0034	69.8	-9.9931	-27.8706
		52				29.2912	0.9565	-12.0752	0.0039	0.049	0.2127	0.4682	-0.0435	-1.2834	0.0039	0.049	-0.0187	69.8	-11.4912	-18.2682
		62				21.6085	0.8742	-15.1025	0.0088	0.1098	0.2202	1.6849	-0.1258	-2.2353	0.0088	0.1098	-0.0557	69.8	-13.8085	-9.4849
		72				15.1994	0.7472	-17.0104	0.0137	0.1697	0.2046	4.1751	-0.2528	-2.068	0.0137	0.1697	-0.1158	69.8	-17.3994	-1.9751
		82				10.2537	0.5979	-17.119	0.0166	0.2054	0.1732	8.1289	-0.4021	-0.1012	0.0166	0.2054	-0.1916	69.8	-22.4537	4.0711
		75				13.5614	0.7035	-17.2391	0.0148	0.1836	0.1964	5.207	-0.2965	-1.674	0.0148	0.1836	-0.1374	69.8	-18.7614	-0.007
		76				13.0452	0.6887	-17.2773	0.0151	0.1877	0.1934	5.5807	-0.3113	-1.5047	0.0151	0.1877	-0.1448	69.8	-19.2452	**0.6193**
		77				12.5437	0.6737	-17.2966	0.0154	0.1915	0.1902	5.9692	-0.3263	-1.3164	0.0154	0.1915	-0.1524	69.8	-19.7437	1.2308

SIMULATION OF OPTION VALUES USING BOPSCOL
COMMERCIAL AND SERVICES SECTOR-JULY-DECEMBER 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31/12/98*	*Value of European call option*	*Value of European put option*
A Baumann & Co	15.5	**14**	23.32	11	0.5	1.8058	0.9457	-0.6469	0.0913	0.0121	0.0643	0.0286	-0.0543	-0.0979	0.0913	0.0121	-0.0044	16.9	**1.0942**	-2.9286
		15				0.9709	0.7635	-0.8063	0.2558	0.0338	0.0543	0.1738	-0.2365	-0.2182	0.2558	0.0338	-0.0192	16.9	**0.9291**	-2.0738
		16				0.3976	0.4553	-0.7444	0.3288	0.0435	0.0333	0.5808	-0.5447	-0.117	0.3288	0.0435	-0.0451	16.9	**0.5024**	-1.4808
		17				0.1186	0.1863	-0.434	0.2224	0.0294	0.0138	1.282	-0.8137	0.2325	0.2224	0.0294	-0.0695	16.9	-0.2186	-1.182
CMC Holdings Ltd	35	21	23.32	29	0.5	16.3128	0.9992	-4.3707	0.0004	0.0007	0.0933	0.0016	-0.0008	-0.0125	0.0004	0.0007	-0.0001	33	-4.3128	-12.0016
		31				7.7979	0.8967	-6.7901	0.025	0.0445	0.1179	0.3861	-0.1033	-0.3565	0.025	0.0445	-0.02	33	-5.7979	-2.3861
		41				2.2349	0.46	-6.0821	0.0553	0.0982	0.0693	3.7225	-0.54	2.4268	0.0553	0.0982	-0.1131	33	-10.2349	4.2775
		33				6.3455	0.831	-7.1122	0.0351	0.0624	0.1137	0.7135	-0.169	-0.2635	0.0351	0.0624	-0.0331	33	-6.3455	-0.7135
		34				5.6767	0.7917	-7.1968	0.04	0.071	0.1102	0.9347	-0.2083	-0.1406	0.04	0.071	-0.0411	33	-6.6767	**0.0653**
Car & General	11.1	**5**	23.32	43	0.5	6.6511	0.9992	-1.0446	0.0008	0.0002	0.0222	0.0008	-0.0008	-0.0069	0.0008	0.0002	0	12	**0.3489**	-7.0008
		15				0.6136	0.3246	-1.9114	0.1066	0.0282	0.0149	2.8627	-0.6754	1.2016	0.1066	0.0282	-0.0518	12	-3.6136	**0.1373**
		6				5.7665	0.9947	-1.2812	0.0045	0.0012	0.0264	0.0062	-0.0053	-0.0359	0.0045	0.0012	-0.0003	12	0.2335	-6.0062
		7				4.8981	0.9799	-1.5583	0.0144	0.0038	0.0299	0.0277	-0.0201	-0.1056	0.0144	0.0038	-0.0013	12	**0.1019**	-5.0277
		8				4.0664	0.9466	-1.8688	0.0322	0.0085	0.0322	0.0859	-0.0534	-0.2086	0.0322	0.0085	-0.0034	12	-0.0664	-4.0859
		14				0.8444	0.4099	-2.176	0.1152	0.0305	0.0185	2.2036	-0.5901	0.7295	0.1152	0.0305	-0.0438	12	-2.8444	-0.2036
Express Kenya Ltd	30	14	23.32	36	0.5	17.5412	0.9998	-2.9092	0.0001	0.0001	0.0623	0.0003	-0.0002	-0.0037	0.0001	0.0001	0	28.6	-2.9412	-14.6003
		24				8.9123	0.9281	-5.4612	0.0179	0.0291	0.0947	0.2709	-0.0719	-0.4804	0.0179	0.0291	-0.0121	28.6	-4.3123	-4.8709
		34				2.9242	0.5373	-6.1103	0.052	0.0843	0.066	3.1822	-0.4627	0.9458	0.052	0.0843	-0.0853	28.6	-8.3242	**2.2178**
		30				4.8161	0.7208	-6.4868	0.044	0.0713	0.084	1.5144	-0.2792	-0.2608	0.044	0.0713	-0.0494	28.6	-6.2161	-0.1144
		31				4.2779	0.676	-6.4768	0.0471	0.0763	0.08	1.8661	-0.324	-0.0432	0.0471	0.0763	-0.0579	28.6	-6.6779	**0.5339**
Kenya Airways	7	**5**	23.32	25	0.5	2.5519	0.996	-1.0454	0.0096	0.0006	0.0221	0.0016	-0.004	-0.0078	0.0096	0.0006	-0.0001	8	**0.4481**	-3.0016
		6				1.6897	0.9474	-1.2854	0.0868	0.0053	0.0247	0.0294	-0.0526	-0.0402	0.0868	0.0053	-0.002	8	**0.3103**	-2.0294
		7				0.9485	0.7728	-1.4135	0.2437	0.0149	0.0223	0.1781	-0.2272	0.0393	0.2437	0.0149	-0.0088	8	**0.0515**	-1.1781
		8				0.4397	0.4971	-1.2025	0.3224	0.0197	0.0152	0.5593	-0.5029	0.4578	0.3224	0.0197	-0.0204	8	-0.4397	-0.5593
		9				0.1696	0.2503	-0.7624	0.2569	0.0157	0.0079	1.1791	-0.7497	1.1054	0.2569	0.0157	-0.0321	8	-1.1696	-0.1791
		10				0.0559	0.1021	-0.3741	0.144	0.0088	0.0033	1.9553	-0.8979	1.7012	0.144	0.0088	-0.0412	8	-2.0559	**0.0447**
Lonhro Motors	26.3	14	23.32	25	0.5	13.8408	1	-2.9056	0	0	0.0623	0	0	-0.0001	0	0	0	22	-5.8408	-8
		24				5.187	0.8972	-5.1256	0.0385	0.0333	0.092	0.2456	-0.1028	-0.1447	0.0385	0.0333	-0.0147	22	-7.187	1.7544
		20				8.5194	0.9892	-4.2128	0.0061	0.0053	0.0875	0.0182	-0.0108	-0.0621	0.0061	0.0053	-0.0015	22	-6.5194	-2.0182
		21				7.6509	0.9784	-4.4569	0.0111	0.0096	0.0904	0.0397	-0.0216	-0.0987	0.0111	0.0096	-0.003	22	-6.6509	-1.0397
		22				6.8001	0.9606	-4.7015	0.0183	0.0158	0.0923	0.0788	-0.0394	-0.1357	0.0183	0.0158	-0.0056	22	-6.8001	-0.0788
		23				5.9755	0.934	-4.9314	0.0276	0.0239	0.0929	0.1441	-0.066	-0.1581	0.0276	0.0239	-0.0094	22	-7.8001	**0.8559**
Marshalls EA Ltd	28.3	22	23.32	17	0.5	8.7222	0.9991	-4.57	0.0009	0.0006	0.0978	0.0009	-0.0009	-0.0042	0.0009	0.0006	-0.0001	25	-5.7222	-3.0009
		32				1.2734	0.5032	-4.3808	0.1173	0.0798	0.0648	1.4515	-0.4968	2.2603	0.1173	0.0798	-0.0776	25	-8.2734	5.5485
		25				6.0769	0.9804	-5.215	0.014	0.0095	0.1083	0.0255	-0.0196	-0.0266	0.014	0.0095	-0.0029	25	-6.0769	-0.0255
		26				5.2212	0.9587	-5.4102	0.026	0.0177	0.1095	0.0597	-0.0413	-0.0144	0.026	0.0177	-0.0061	25	-6.2212	**0.9403**

		27				4.3966	0.9224	-5.5563	0.0427	0.0291	0.1085	0.125	-0.0776	0.0471	0.0427	0.0291	-0.0116	25	-6.3966	1.875
Nation Media Grou	113.2	**32**	23.32	80	0.5	84.7969	0.9968	-7.1661	0.0002	0.0078	0.1402	0.075	-0.0032	-0.525	0.0002	0.0078	-0.0022	135.8	**19.0031**	-103.875
		42				76.1604	0.9875	-10.3787	0.0005	0.0259	0.1781	0.3379	-0.0125	-1.6623	0.0005	0.0259	-0.0088	135.8	**17.6396**	-94.1379
		52				67.8887	0.9688	-14.2394	0.0011	0.0562	0.2089	0.9656	-0.0312	-3.4477	0.0011	0.0562	-0.0225	135.8	**15.9113**	-84.7656
		62				60.1322	0.9398	-18.4334	0.0019	0.0956	0.2313	2.1085	-0.0602	-5.5662	0.0019	0.0956	-0.0446	135.8	**13.6678**	-75.9085
		72				52.9929	0.9013	-22.5672	0.0027	0.1392	0.2452	3.8686	-0.0987	-7.6248	0.0027	0.1392	-0.0752	135.8	**10.8071**	-67.6686
		82				46.5211	0.8552	-26.309	0.0036	0.1823	0.2514	6.2963	-0.1448	-9.2912	0.0036	0.1823	-0.1134	135.8	**7.2789**	-60.0963
		92				40.7246	0.8039	-29.4409	0.0043	0.2215	0.2514	9.3992	-0.1961	-10.3477	0.0043	0.2215	-0.158	135.8	**3.0754**	-53.1992
		102				35.5806	0.7496	-31.8575	0.005	0.2546	0.2464	13.1546	-0.2504	-10.689	0.005	0.2546	-0.2075	135.8	-1.7806	-46.9546
		97				38.0733	0.777	-30.7414	0.0047	0.2389	0.2494	11.1976	-0.223	-10.6106	0.0047	0.2389	-0.1822	135.8	0.7267	-49.9976
		98				37.5622	0.7715	-30.9794	0.0047	0.2422	0.2489	11.5765	-0.2285	-10.6411	0.0047	0.2422	-0.1872	135.8	**0.2378**	-49.3765
		99				37.0575	0.7661	-31.21	0.0048	0.2454	0.2483	11.9617	-0.2339	-10.6641	0.0048	0.2454	-0.1922	135.8	-0.2575	-48.7617
		242				5.4836	0.1965	-21.6468	0.0043	0.2217	0.0838	107.6493	-0.8035	28.5765	0.0043	0.2217	-0.993	135.8	-111.6836	-1.4493
		252				4.8361	0.1773	-20.1958	0.0041	0.208	0.0762	115.9012	-0.8227	32.1028	0.0041	0.208	-1.0452	135.8	-121.0361	0.2988
		262				4.2706	0.16	-18.8069	0.0038	0.1947	0.0692	124.2352	-0.84	35.567	0.0038	0.1947	-1.0966	135.8	-130.4706	1.9648
		272				3.7763	0.1444	-17.4861	0.0035	0.1819	0.0629	132.6402	-0.8556	38.9632	0.0035	0.1819	-1.1475	135.8	-139.9763	3.5598
		282				3.3435	0.1304	-16.2365	0.0033	0.1697	0.0571	141.1069	-0.8696	42.2881	0.0033	0.1697	-1.1977	135.8	-149.5435	5.0931
		292				2.9641	0.1178	-15.0596	0.0031	0.158	0.0518	149.6269	-0.8822	45.5404	0.0031	0.158	-1.2475	135.8	-159.1641	6.5731
		302				2.6311	0.1064	-13.9553	0.0029	0.147	0.0471	158.1933	-0.8936	48.7201	0.0029	0.147	-1.2967	135.8	-168.8311	8.0067
		250				4.9586	0.181	-20.4813	0.0041	0.2108	0.0776	114.2439	-0.819	31.4023	0.0041	0.2108	-1.0348	135.8	-119.1586	-0.0439
		251				4.897	0.1791	-20.3382	0.0041	0.2094	0.0769	115.0722	-0.8209	31.7529	0.0041	0.2094	-1.04	135.8	-120.097	**0.1278**
Pearl Drycleaners	10.3	9	23.32	4	0.5	2.2905	1	-1.8678	0	0	0.04	0	0	0	0	0	0	10	-1.2905	-1
		10				1.4006	1	-2.0753	0	0	0.0445	0	0	0	0	0	0	10	-1.4006	0
		11				0.5147	0.965	-2.2204	0.2652	0.0056	0.0471	0.0041	-0.035	0.0625	0.2652	0.0056	-0.0018	10	-1.5147	**0.9959**
Standard Newspap	29.9	5	23.32	92	0.5	25.4538	0.9994	-1.0719	0.0001	0.0004	0.0221	0.0035	-0.0006	-0.0342	0.0001	0.0004	-0.0001	21.3	-9.1538	-16.3035
		15				17.199	0.9412	-4.8327	0.006	0.0248	0.0547	0.6481	-0.0588	-1.7197	0.006	0.0248	-0.012	21.3	-10.899	-6.9481
		25				11.1208	0.7822	-8.5868	0.0151	0.0622	0.0613	3.4693	-0.2178	-3.3985	0.0151	0.0622	-0.0499	21.3	-14.8208	**0.2307**
		24				11.6224	0.8002	-8.3114	0.0144	0.0592	0.0615	3.081	-0.1998	-3.3305	0.0144	0.0592	-0.0453	21.3	-14.3224	-0.381
TPS Serena	13	8	23.32	31	0.5	5.8824	0.9979	-1.6726	0.0024	0.0006	0.0354	0.0019	-0.0021	-0.0123	0.0024	0.0006	-0.0001	13.6	-0.2824	-5.6019
		18				0.2871	0.1996	-1.335	0.0981	0.0257	0.0115	3.306	-0.8004	2.4006	0.0981	0.0257	-0.0686	13.6	-4.6871	1.094
		13				1.9349	0.7394	-2.7158	0.114	0.0299	0.0384	0.5042	-0.2606	-0.0178	0.114	0.0299	-0.0195	13.6	-1.3349	-1.1042
		14				1.4021	0.6192	-2.636	0.1337	0.035	0.0332	0.8613	-0.3808	0.2695	0.1337	0.035	-0.0291	13.6	-1.8021	-0.4613
		15				0.9836	0.4955	-2.4095	0.14	0.0367	0.0273	1.3327	-0.5045	0.7035	0.14	0.0367	-0.0395	13.6	-2.3836	**0.0673**
Uchumi Supermark	45.5	31	23.32	31	0.5	17.9416	0.9916	-6.5654	0.0023	0.0073	0.1359	0.0298	-0.0084	-0.1318	0.0023	0.0073	-0.0021	44.6	-4.3416	-13.6298
		41				9.7439	0.8679	-9.07	0.0214	0.0688	0.1487	0.7314	-0.1321	-0.5611	0.0214	0.0688	-0.0337	44.6	-6.1439	-4.3314
		51				4.0228	0.5481	-8.8279	0.0397	0.1274	0.1046	3.9098	-0.4519	1.7564	0.0397	0.1274	-0.1223	44.6	-10.4228	2.4902
		46				6.481	0.723	-9.4997	0.0336	0.1077	0.1321	1.9183	-0.277	0.0468	0.0336	0.1077	-0.0726	44.6	-7.881	-0.5183
		47				5.9233	0.6892	-9.4541	0.0354	0.1136	0.1272	2.2505	-0.3108	0.3	0.0354	0.1136	-0.082	44.6	-8.881	**0.1495**

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JULY-DECEMBER 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.98*	*Value of European call option*	*Value of European put option*
Barclays Bank	101.5	63	23.3	38	0.5	45.5296	0.9904	-13.5248	0.0009	0.0184	0.275	0.0959	-0.0096	-0.4502	0.0009	0.0184	-0.0053	122.2	13.6704	-59.2959
		73				36.9704	0.9637	-16.3613	0.0029	0.0572	0.3042	0.4361	-0.0363	-1.2113	0.0029	0.0572	-0.0206	122.2	12.2296	-49.6361
		83				28.9787	0.9061	-19.2595	0.0061	0.1203	0.315	1.3438	-0.0939	-2.0342	0.0061	0.1203	-0.0544	122.2	10.2213	-40.5438
		93				21.8969	0.8143	-21.4651	0.0098	0.192	0.3038	3.1614	-0.1857	-2.1644	0.0098	0.192	-0.1101	122.2	7.3031	-32.3614
		103				15.9689	0.6963	-22.2921	0.0128	0.2509	0.2735	6.1328	-0.3037	-0.916	0.0128	0.2509	-0.1848	122.2	3.2311	-25.3328
		113				11.2724	0.567	-21.5195	0.0144	0.2823	0.2314	10.3358	-0.433	1.9319	0.0144	0.2823	-0.2714	122.2	-2.0724	-19.5358
		123				7.7314	0.4417	-19.4153	0.0145	0.2833	0.1855	15.6941	-0.5583	6.1114	0.0145	0.2833	-0.3618	122.2	-8.5314	-14.8941
		133				5.1731	0.3308	-16.5111	0.0133	0.2602	0.142	22.0353	-0.6692	11.0909	0.0133	0.2602	-0.4498	122.2	-15.9731	-11.2353
		143				3.3899	0.2397	-13.3537	0.0114	0.2229	0.1047	29.1515	-0.7603	16.3237	0.0114	0.2229	-0.5316	122.2	-24.1899	-8.3515
		153				2.1834	0.1688	-10.3557	0.0092	0.1808	0.0747	36.8444	-0.8312	21.397	0.0092	0.1808	-0.6061	122.2	-32.9834	-6.0444
		163				1.3866	0.1161	-7.7556	0.0072	0.1403	0.052	44.947	-0.8839	26.0725	0.0072	0.1403	-0.6733	122.2	-42.1866	-4.147
		173				0.8707	0.0784	-5.6432	0.0054	0.105	0.0354	53.3305	-0.9216	30.2603	0.0054	0.105	-0.7344	122.2	-51.6707	-2.5305
		109				13.0052	0.619	-22.0122	0.014	0.2735	0.2491	8.5088	-0.381	0.609	0.014	0.2735	-0.2359	122.2	**0.1948**	-21.7088
		110				12.5541	0.606	-21.9108	0.0141	0.2762	0.2448	8.9476	-0.394	0.9179	0.0141	0.2762	-0.2447	122.2	-0.3541	-21.1476
City Trust Ltd	31.6	9	23.3	77	0.5	23.6063	0.9974	-1.9837	0.0005	0.0018	0.0396	0.0158	-0.0026	-0.1159	0.0005	0.0018	-0.0005	26.1	-6.5063	-17.1158
		19				15.4561	0.9223	-5.6941	0.0085	0.0325	0.0684	0.765	-0.0777	-1.751	0.0085	0.0325	-0.0161	26.1	-8.3561	-7.865
		29				9.4635	0.7402	-8.8262	0.0188	0.0724	0.0696	3.6718	-0.2598	-2.8077	0.0188	0.0724	-0.0594	26.1	-12.3635	-0.7718
		39				5.6623	0.5398	-9.4872	0.0231	0.0887	0.057	8.77	-0.4602	-1.3934	0.0231	0.0887	-0.1166	26.1	-18.5623	4.13
		30				8.9943	0.7197	-9.0009	0.0196	0.0753	0.0687	4.0925	-0.2803	-2.7749	0.0196	0.0753	-0.0648	26.1	-12.8943	-0.1925
		31				8.5468	0.699	-9.149	0.0202	0.0778	0.0677	4.535	-0.301	-2.7155	0.0202	0.0778	-0.0702	26.1	-13.4468	**0.365**
CFC Bank	16.9	11	23.3	24	0.5	7.111	0.9995	-2.2858	0.0006	0.0002	0.0489	0.0004	-0.0005	-0.0029	0.0006	0.0002	0	15.6	-2.511	-4.6004
		21				0.5137	0.3057	-2.0908	0.1223	0.0419	0.0233	2.3024	-0.6943	2.2674	0.1223	0.0419	-0.0702	15.6	-5.9137	3.0976
		15				3.6462	0.9299	-3.2	0.0469	0.0161	0.0603	0.0953	-0.0701	-0.087	0.0469	0.0161	-0.0064	15.6	-3.0462	-0.6953
		16				2.8758	0.8631	-3.3596	0.0764	0.0262	0.0586	0.2149	-0.1369	-0.0391	0.0764	0.0262	-0.0126	15.6	-3.2758	**0.1851**
Diamond Trust Banl	22	16	23.3	20	0.5	7.7617	0.9992	-3.3249	0.0009	0.0004	0.0711	0.0007	-0.0008	-0.0044	0.0009	0.0004	-0.0001	21.1	-2.6617	-5.1007
		26				0.783	0.3874	-2.9965	0.1231	0.0596	0.0387	1.9215	-0.6126	2.3994	0.1231	0.0596	-0.077	21.1	-5.683	2.9785
		21				3.4878	0.8896	-4.3371	0.0606	0.0293	0.0804	0.1766	-0.1104	0.0211	0.0606	0.0293	-0.013	21.1	-3.3878	-0.2766
		22				2.7586	0.8147	-4.3677	0.0859	0.0416	0.0758	0.3373	-0.1853	0.1981	0.0859	0.0416	-0.0221	21.1	-3.6586	**0.5627**
Housing Finance Cc of Kenya	16	10	23.3	32	0.5	7.1046	0.9966	-2.0988	0.0028	0.0012	0.0442	0.004	-0.0034	-0.0235	0.0028	0.0012	-0.0003	16.3	-0.8046	-6.304
		20				0.7877	0.3603	-2.5154	0.1034	0.0423	0.0249	2.5865	-0.6397	1.6353	0.1034	0.0423	-0.0641	16.3	-4.4877	1.1135
		15				3.0465	0.8196	-3.2989	0.0726	0.0297	0.0503	0.3956	-0.1804	-0.1859	0.0726	0.0297	-0.0164	16.3	-1.7465	-1.6956
		16				2.4183	0.7351	-3.3645	0.0904	0.037	0.0467	0.6574	-0.2649	-0.044	0.0904	0.037	-0.0245	16.3	-2.1183	-0.9574
		17				1.88	0.6408	-3.3059	0.1033	0.0423	0.0419	1.009	-0.3592	0.2222	0.1033	0.0423	-0.0338	16.3	-2.58	-0.309
		18				1.4327	0.543	-3.1278	0.1096	0.0449	0.0363	1.4516	-0.457	0.6079	0.1096	0.0449	-0.0438	16.3	-3.1327	**0.2484**
ICDC Investments Co Ltd	39.1	26	23.3	37	0.5	16.027	0.9837	-5.6485	0.004	0.0113	0.1122	0.0654	-0.0163	-0.2526	0.004	0.0113	-0.0035	41.8	-0.227	-15.8654
		36				8.2471	0.8139	-8.2387	0.0262	0.0741	0.1179	1.185	-0.1861	-0.7675	0.0262	0.0741	-0.0423	41.8	-2.4471	-6.985
		46				3.31	0.4822	-7.7016	0.039	0.1102	0.0777	5.1473	-0.5178	1.845	0.039	0.1102	-0.127	41.8	-7.51	-0.9473
		56				1.097	0.2129	-4.6566	0.0284	0.0803	0.0361	11.8337	-0.7871	6.9653	0.0284	0.0803	-0.2131	41.8	-15.297	2.3663
		47				2.986	0.4495	-7.4507	0.0387	0.1094	0.0729	5.7132	-0.5505	2.3034	0.0387	0.1094	-0.1362	41.8	-8.186	-0.5132
		48				2.6887	0.4179	-7.1774	0.0382	0.108	0.0682	6.3059	-0.5821	2.7843	0.0382	0.108	-0.1453	41.8	-8.8887	-0.1059

		49				2.4168	0.3874	-6.8858	0.0374	0.1059	0.0636	6.9239	-0.6126	3.2834	0.0374	0.1059	-0.1544	41.8	-9.6168	**0.2761**
Jubilee Insurance Co Ltd	30.2	23	23.3	19	0.5	9.7332	0.9985	-4.7822	0.0012	0.0011	0.1021	0.0018	-0.0015	-0.0089	0.0012	0.0011	-0.0002	30.3	-2.4332	-7.3018
		33				2.0454	0.6084	-5.3662	0.0947	0.082	0.0816	1.2135	-0.3916	1.4825	0.0947	0.082	-0.0652	30.3	-4.7454	1.4865
		28				5.4077	0.9329	-5.8363	0.032	0.0277	0.1138	0.126	-0.0671	-0.0254	0.032	0.0277	-0.0108	30.3	-3.1077	-2.426
		29				4.6152	0.8919	-5.9586	0.0458	0.0396	0.1116	0.2235	-0.1081	0.0599	0.0458	0.0396	-0.0174	30.3	-3.3152	-1.5235
		30				3.8724	0.8376	-5.9926	0.0606	0.0525	0.1071	0.3706	-0.1624	0.2334	0.0606	0.0525	-0.0264	30.3	-3.5724	-0.6706
		31				3.1907	0.7705	-5.9127	0.0747	0.0648	0.1004	0.5789	-0.2295	0.5208	0.0747	0.0648	-0.0376	30.3	-3.8907	**0.1211**
KCB Ltd	70	47	23.3	23	0.5	28.1746	0.9994	-9.7675	0.0002	0.001	0.2089	0.0018	-0.0006	-0.0134	0.0002	0.001	-0.0002	61.4	-13.7746	-14.4018
		57				19.3599	0.9804	-12.0314	0.0042	0.0236	0.2463	0.0865	-0.0196	-0.2019	0.0042	0.0236	-0.0073	61.4	-14.9599	-4.4865
		67				11.2706	0.8571	-13.9326	0.0198	0.1117	0.2436	0.8966	-0.1429	-0.0278	0.0198	0.1117	-0.0545	61.4	-16.8706	4.7034
		61				15.967	0.95	-12.9585	0.0091	0.0511	0.2527	0.2534	-0.05	-0.2989	0.0091	0.0511	-0.0188	61.4	-15.567	-0.6534
		62				15.1449	0.9388	-13.1705	0.0106	0.0599	0.2528	0.3212	-0.0612	-0.3034	0.0106	0.0599	-0.023	61.4	-15.7449	**0.2788**
National Bank Ltd	12.8	4	23.3	60	0.5	9.2412	0.9994	-0.8399	0.0004	0.0002	0.0178	0.001	-0.0006	-0.0097	0.0004	0.0002	0	8.6	-4.6412	-4.601
		14				2.2964	0.6086	-3.3669	0.0707	0.0348	0.0275	1.9555	-0.3914	-0.4614	0.0707	0.0348	-0.0348	8.6	-7.6964	3.4445
		8				5.8323	0.9446	-2.067	0.0206	0.0101	0.0313	0.1519	-0.0554	-0.4067	0.0206	0.0101	-0.0043	8.6	-5.2323	-0.7519
		9				5.0781	0.9061	-2.4304	0.0309	0.0152	0.0326	0.2876	-0.0939	-0.5626	0.0309	0.0152	-0.0074	8.6	-5.4781	**0.1124**
NIC Bank Ltd	33.1	13	23.3	54	0.5	21.5373	0.9984	-2.7501	0.0004	0.0012	0.0575	0.0065	-0.0016	-0.0521	0.0004	0.0012	-0.0003	28.9	-5.6373	-15.9065
		23				13.1189	0.9264	-5.8548	0.011	0.0326	0.0877	0.4875	-0.0736	-1.0815	0.011	0.0326	-0.0146	28.9	-7.2189	-6.3875
		33				6.8222	0.6929	-8.1981	0.0278	0.0822	0.0806	3.0903	-0.3071	-1.3495	0.0278	0.0822	-0.0663	28.9	-10.9222	1.0097
		31				7.8554	0.7479	-7.9752	0.0253	0.0747	0.0845	2.3436	-0.2521	-1.5417	0.0253	0.0747	-0.0534	28.9	-9.9554	-0.2436
		32				7.3246	0.7207	-8.1043	0.0266	0.0787	0.0826	2.7027	-0.2793	-1.4632	0.0266	0.0787	-0.0597	28.9	-10.4246	**0.3973**
Pan Africa Ins Co	20	13	23.3	18	0.5	8.4308	1	-2.698	0	0	0	0	0	0	0	0	0	16.7	-4.7308	-3.7
		22				1.2288	0.5913	-3.4601	0.1526	0.0549	0.053	0.8075	-0.4087	1.1056	0.1526	0.0549	-0.0449	16.7	-6.5288	4.4925
		16				5.7635	0.9969	-3.3296	0.0037	0.0013	0.0709	0.0025	-0.0031	-0.009	0.0037	0.0013	-0.0003	16.7	-5.0635	-0.7025
		17				4.882	0.988	-3.5491	0.0123	0.0044	0.0744	0.011	-0.012	-0.021	0.0123	0.0044	-0.0013	16.7	-5.182	**0.289**
		18				4.0184	0.9647	-3.7603	0.0306	0.011	0.0764	0.0374	-0.0353	-0.0247	0.0306	0.011	-0.0037	16.7	-5.3184	1.2626
Standard Chartered Bank Ltd	42.1	**27**	23.3	34	0.5	18.0969	0.9929	-5.7273	0.0019	0.0059	0.1185	0.0253	-0.0071	-0.1239	0.0019	0.0059	-0.0016	51.7	**6.6031**	-24.7253
		37				9.8838	0.8733	-8.3721	0.0205	0.0618	0.1344	0.7116	-0.1267	-0.6934	0.0205	0.0618	-0.0302	51.7	4.8162	-15.4116
		47				4.153	0.5585	-8.5094	0.039	0.1175	0.0968	3.8802	-0.4415	1.2447	0.039	0.1175	-0.1123	51.7	**0.547**	-8.5802
		57				1.3887	0.2562	-5.4494	0.0318	0.0958	0.047	10.0153	-0.7438	6.38	0.0318	0.0958	-0.2066	51.7	-6.6887	-4.7153
		67				0.3953	0.0922	-2.4858	0.0163	0.0492	0.0174	17.9213	-0.9078	11.419	0.0163	0.0492	-0.2807	51.7	-15.6953	-2.6213
		48				3.7565	0.5238	-8.2971	0.0393	0.1186	0.0915	4.3737	-0.4762	1.6645	0.0393	0.1186	-0.1221	51.7	-0.0565	-8.0737

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JULY TO DECEMBER 1998

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.98*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	9	4	23.32	48	0.5	5.442	0.9981	-0.8439	0.0019	0.0004	0.0177	0.0018	-0.0019	-0.0137	0.0019	0.0004	-0.0001	6.2	-3.242	-2.2018
		14				0.3211	0.2152	-1.2698	0.0957	0.0186	0.0081	3.7803	-0.7848	1.6357	0.0957	0.0186	-0.0542	6.2	-8.1211	4.0197
		6				3.7229	0.9562	-1.4221	0.0304	0.0059	0.0244	0.0625	-0.0438	-0.1769	0.0304	0.0059	-0.0023	6.2	-3.5229	-0.2625
		7				2.9487	0.895	-1.7462	0.0595	0.0116	0.0255	0.1783	-0.105	-0.2935	0.0595	0.0116	-0.0056	6.2	-3.7487	**0.6217**
		8				2.2717	0.8052	-2.0019	0.0902	0.0175	0.0249	0.3913	-0.1948	-0.3416	0.0902	0.0175	-0.0107	6.2	-4.0717	1.4087
		9				1.7076	0.6961	-2.131	0.1145	0.0223	0.0228	0.7171	-0.3039	-0.2632	0.1145	0.0223	-0.0173	6.2	-4.5076	2.0829
Bamburi Cement Ltd	35.1	17	23.32	46	0.5	19.9823	0.997	-3.6049	0.0008	0.0023	0.0751	0.0113	-0.003	-0.0768	0.0008	0.0023	-0.0006	36	-0.9823	-19.0113
		27				11.6356	0.9079	-6.6043	0.0145	0.041	0.1012	0.5641	-0.0921	-1.0008	0.0145	0.041	-0.019	36	-2.6356	-9.5641
		37				5.5642	0.6402	-8.2132	0.0328	0.0928	0.0845	3.392	-0.3598	-0.5344	0.0328	0.0928	-0.0801	36	-6.5642	-2.392
		47				2.3023	0.3533	-6.5981	0.0326	0.0922	0.0505	9.0295	-0.6467	3.1561	0.0326	0.0922	-0.1586	36	-13.3023	1.9705
		41				3.9631	0.5173	-7.8607	0.0349	0.0989	0.071	5.3506	-0.4827	0.6482	0.0349	0.0989	-0.1115	36	-8.9631	-0.3506
		42				3.6294	0.4878	-7.6988	0.0349	0.099	0.0675	5.907	-0.5122	1.0177	0.0349	0.099	-0.1194	36	-9.6294	**0.093**
BAT Ltd	67.5	65	23.32	9	0.5	7.9132	0.9762	-13.7619	0.0131	0.0268	0.2899	0.0392	-0.0238	0.1429	0.0131	0.0268	-0.0082	71.2	-1.7132	-6.2392
		75				2.1076	0.5826	-10.3554	0.0909	0.1863	0.1861	1.3531	-0.4174	5.2097	0.0909	0.1863	-0.1477	71.2	-5.9076	2.4469
		70				5.4082	0.9019	-13.6792	0.0403	0.0826	0.2774	0.2041	-0.0981	0.8482	0.0403	0.0826	-0.0341	71.2	-4.2082	-1.4041
		71				4.6361	0.8576	-13.3857	0.0524	0.1075	0.2663	0.3219	-0.1424	1.3492	0.0524	0.1075	-0.0497	71.2	-4.4361	-0.5219
		72				3.9114	0.8023	-12.9112	0.0647	0.1327	0.2512	0.4871	-0.1977	2.0313	0.0647	0.1327	-0.0692	71.2	-4.7114	**0.3129**
BOC Gases Ltd	35.1	18	23.32	46	0.5	19.1011	0.995	-3.8556	0.0013	0.0036	0.0791	0.02	-0.005	-0.12	0.0013	0.0036	-0.001	36	-1.1011	-18.02
		28				10.8989	0.888	-6.9017	0.0167	0.0473	0.1013	0.7172	-0.112	-1.0907	0.0167	0.0473	-0.0232	36	-2.8989	-8.7172
		38				5.1218	0.6091	-8.1747	0.0336	0.0953	0.0813	3.8396	-0.3909	-0.2884	0.0336	0.0953	-0.0878	36	-7.1218	-1.8396
		48				2.0963	0.3295	-6.3409	0.0317	0.0898	0.0474	9.7135	-0.6705	3.6207	0.0317	0.0898	-0.1662	36	-14.0963	2.2865
		41				3.9631	0.5173	-7.8607	0.0349	0.0989	0.071	5.3506	-0.4827	0.6482	0.0349	0.0989	-0.1115	36	-8.9631	-0.3506
		42				3.6294	0.4878	-7.6988	0.0349	0.099	0.0675	5.907	-0.5122	1.0177	0.0349	0.099	-0.1194	36	-9.6294	**0.093**
		43				3.3202	0.459	-7.5133	0.0348	0.0985	0.064	6.4877	-0.541	1.4107	0.0348	0.0985	-0.1274	36	-10.3202	0.5123
Carbacid Investment	44.9	**36**	23.32	34	0.5	13.1919	0.9363	-8.075	0.0116	0.0396	0.1442	0.3298	-0.0637	-0.6037	0.0116	0.0396	-0.016	74.2	**25.0081**	-38.5298
		46				6.3858	0.6931	-9.5594	0.0325	0.1115	0.1237	2.4231	-0.3069	-0.0128	0.0325	0.1115	-0.081	74.2	**21.8142**	-30.6231
		56				2.4815	0.3769	-7.4672	0.0352	0.1206	0.0722	7.4182	-0.6231	4.1547	0.0352	0.1206	-0.177	74.2	**15.7185**	-25.6182
		66				0.8147	0.1594	-4.0982	0.0225	0.077	0.0317	14.6509	-0.8406	9.5991	0.0225	0.077	-0.262	74.2	**7.3853**	-22.8509
		76				0.2386	0.0566	-1.7655	0.0105	0.0361	0.0115	22.9741	-0.9434	14.0071	0.0105	0.0361	-0.3267	74.2	-2.0386	-21.1741
		71				0.4459	0.0967	-2.7559	0.0159	0.0543	0.0195	18.7317	-0.9033	11.979	0.0159	0.0543	-0.2965	74.2	2.7541	-21.9317
		72				0.3941	0.0871	-2.5301	0.0147	0.0503	0.0176	19.5699	-0.9129	12.4124	0.0147	0.0503	-0.3028	74.2	1.8059	-21.7699
		73				0.3481	0.0783	-2.3184	0.0136	0.0465	0.0158	20.4138	-0.9217	12.8316	0.0136	0.0465	-0.309	74.2	**0.8519**	-21.6138
		74				0.3071	0.0704	-2.1207	0.0125	0.0428	0.0143	21.2628	-0.9296	13.2368	0.0125	0.0428	-0.315	74.2	-0.1071	-21.4628
Crown Berger Ltd	9.4	5	23.32	44	0.5	4.9557	0.9948	-1.069	0.0052	0.001	0.022	0.0054	-0.0052	-0.0314	0.0052	0.001	-0.0003	8.1	-1.8557	-3.1054
		15				0.2247	0.1656	-1.0382	0.0851	0.0165	0.0067	4.1738	-0.8344	2.0748	0.0851	0.0165	-0.0601	8.1	-7.1247	2.7262
		8				2.5374	0.8528	-1.951	0.0787	0.0153	0.0274	0.257	-0.1472	-0.2907	0.0787	0.0153	-0.0082	8.1	-2.4374	-0.357
		9				1.9093	0.7486	-2.1279	0.109	0.0212	0.0256	0.5187	-0.2514	-0.2601	0.109	0.0212	-0.0144	8.1	-2.8093	**0.3813**
		10				1.3987	0.6298	-2.1589	0.1291	0.0251	0.0226	0.8981	-0.3702	-0.0835	0.1291	0.0251	-0.0219	8.1	-3.2987	1.0019
Dunlop Kenya Ltd	30.8	10	23.32	72	0.5	21.9204	0.9965	-2.2117	0.0007	0.0023	0.0439	0.0199	-0.0035	-0.1364	0.0007	0.0023	-0.0006	18.5	-13.4204	-8.5199

		20				13.839	0.9085	-5.8757	0.0105	0.0358	0.0707	0.8378	-0.0915	-1.725	0.0105	0.0358	-0.0183	18.5	-15.339	**0.6622**
		19				14.5585	0.924	-5.484	0.0091	0.0311	0.0695	0.6673	-0.076	-1.5409	0.0091	0.0311	-0.015	18.5	-15.0585	-0.1673
E A Cables Ltd	22.1	12	23.32	29	0.5	11.4209	0.9999	-2.492	0.0001	0.0001	0.0534	0.0002	-0.0001	-0.0016	0.0001	0.0001	0	20	-3.4209	-8.0002
		22				3.2496	0.7559	-4.5598	0.0692	0.049	0.0673	0.7283	-0.2441	0.006	0.0692	0.049	-0.0306	20	-5.2496	1.2717
		20				4.6047	0.8766	-4.3685	0.045	0.0319	0.0738	0.3035	-0.1234	-0.2178	0.045	0.0319	-0.0152	20	-4.6047	-0.3035
		21				3.8953	0.8212	-4.5081	0.0576	0.0408	0.0713	0.4841	-0.1788	-0.1498	0.0576	0.0408	-0.0222	20	-4.8953	**0.5159**
E A Packaging Ltd	20	7	23.32	43	0.5	13.7705	1	-1.4534	0	0	0.0311	0	0	-0.0007	0	0	0	15.6	-5.1705	-8.6
		17				5.3812	0.8577	-4.114	0.037	0.0318	0.0589	0.5102	-0.1423	-0.5859	0.037	0.0318	-0.0168	15.6	-6.7812	0.8898
		15				6.8615	0.9308	-3.5505	0.0219	0.0188	0.0588	0.2106	-0.0692	-0.4375	0.0219	0.0188	-0.008	15.6	-6.2615	-0.8106
		16				6.0985	0.8979	-3.8493	0.0293	0.0252	0.0593	0.3376	-0.1021	-0.5287	0.0293	0.0252	-0.0119	15.6	-6.4985	**0.0624**
EA Portland Cement	22.1	15	23.32	25	0.5	8.7528	0.9984	-3.1248	0.0014	0.0008	0.0666	0.0019	-0.0016	-0.0118	0.0014	0.0008	-0.0002	17.6	-6.1528	-2.6019
		25				1.4886	0.5201	-3.8901	0.102	0.0623	0.05	1.6372	-0.4799	1.2983	0.102	0.0623	-0.0612	17.6	-8.8886	5.7628
		17				6.9895	0.9872	-3.5869	0.0085	0.0052	0.0741	0.0185	-0.0128	-0.0588	0.0085	0.0052	-0.0015	17.6	-6.3895	-0.6185
		18				6.126	0.9719	-3.8322	0.0165	0.0101	0.0768	0.045	-0.0281	-0.0966	0.0165	0.0101	-0.0033	17.6	-6.526	**0.355**
		19				5.2877	0.9455	-4.0712	0.0283	0.0173	0.078	0.0966	-0.0545	-0.128	0.0283	0.0173	-0.0065	17.6	-6.6877	1.3034
		20				4.4877	0.9054	-4.2779	0.0431	0.0263	0.0776	0.1866	-0.0946	-0.1272	0.0431	0.0263	-0.0114	17.6	-6.8877	2.2134
Firestone EA Ltd	17.1	12	23.32	29	0.5	6.4309	0.9918	-2.534	0.0064	0.0027	0.0526	0.0102	-0.0082	-0.0436	0.0064	0.0027	-0.0008	16.1	-2.3309	-4.1102
		22				0.5716	0.2886	-2.2149	0.0974	0.0413	0.0218	3.0503	-0.7114	2.3508	0.0974	0.0413	-0.0761	16.1	-6.4716	2.8497
		16				3.1855	0.8402	-3.4601	0.0693	0.0294	0.0559	0.3245	-0.1598	-0.1396	0.0693	0.0294	-0.0153	16.1	-3.0855	-0.4245
		17				2.5283	0.758	-3.5281	0.0891	0.0378	0.0522	0.5573	-0.242	0	0.0891	0.0378	-0.0235	16.1	-3.4283	**0.3427**
EABL	54.8	**42**	23.32	36	0.5	17.7558	0.9485	-9.4537	0.0076	0.0409	0.1711	0.3333	-0.0515	-0.7373	0.0076	0.0409	-0.0158	68.8	**9.0442**	-27.1333
		52				10.46	0.7856	-11.6696	0.0209	0.113	0.163	1.9369	-0.2144	-0.8779	0.0209	0.113	-0.0684	68.8	**6.34**	-18.7369
		62				5.3831	0.54	-11.1825	0.0285	0.1538	0.121	5.7594	-0.46	1.6846	0.0285	0.1538	-0.1548	68.8	**1.4169**	-12.5594
		72				2.4748	0.3131	-8.3672	0.0254	0.1373	0.0734	11.7505	-0.6869	6.5753	0.0254	0.1373	-0.247	68.8	-5.6748	-8.5505
		82				1.0451	0.1592	-5.1727	0.0174	0.094	0.0384	19.2203	-0.8408	11.8451	0.0174	0.094	-0.3265	68.8	-14.2451	-6.0203
		92				0.4156	0.0735	-2.788	0.01	0.054	0.0181	27.4902	-0.9265	16.3052	0.01	0.054	-0.3913	68.8	-23.6156	-4.2902
		102				0.1587	0.0318	-1.3645	0.0051	0.0277	0.0079	36.1327	-0.9682	19.804	0.0051	0.0277	-0.446	68.8	-33.3587	-2.9327
		112				0.059	0.0131	-0.6245	0.0024	0.0131	0.0033	44.9325	-0.9869	22.6193	0.0024	0.0131	-0.4951	68.8	-43.259	-1.7325
		64				4.6458	0.4903	-10.7458	0.0286	0.1545	0.1111	6.802	-0.5097	2.5364	0.0286	0.1545	-0.1737	68.8	**0.1542**	-11.602
		65				4.3089	0.466	-10.4958	0.0285	0.154	0.1061	7.3551	-0.534	2.9939	0.0285	0.154	-0.1831	68.8	-0.5089	-11.1551
		66				3.9923	0.4423	-10.2277	0.0283	0.153	0.1012	7.9284	-0.5577	3.4695	0.0283	0.153	-0.1925	68.8	-1.1923	-10.7284
		67				3.6952	0.4191	-9.9439	0.028	0.1514	0.0963	8.5213	-0.5809	3.9609	0.028	0.1514	-0.2018	68.8	-1.8952	-10.3213
Kenya National Mills	24.3	11	23.32	58	0.5	14.5396	0.9923	-2.4441	0.0021	0.0036	0.0479	0.029	-0.0077	-0.1612	0.0021	0.0036	-0.0011	16.3	-9.2396	-5.329
		21				6.9756	0.801	-5.694	0.028	0.048	0.0624	1.3644	-0.199	-1.3358	0.028	0.048	-0.031	16.3	-11.6756	3.3356
		16				10.4009	0.9343	-4.1435	0.0128	0.022	0.0615	0.34	-0.0657	-0.8229	0.0128	0.022	-0.0097	16.3	-10.1009	-0.64
		17				9.6473	0.9132	-4.5007	0.0159	0.0272	0.0627	0.4763	-0.0868	-0.9727	0.0159	0.0272	-0.0129	16.3	-10.3473	**0.2237**
Kenya Oil Co Ltd	56.1	39	23.32	22	0.5	21.3942	0.9992	-8.1065	0.0003	0.0011	0.1733	0.0019	-0.0008	-0.0127	0.0003	0.0011	-0.0002	55	-5.3942	-16.0019
		49				12.6633	0.9552	-10.3676	0.0108	0.0375	0.2046	0.1704	-0.0448	-0.1985	0.0108	0.0375	-0.0134	55	-6.6633	-6.1704
		59				5.463	0.6926	-10.8548	0.0403	0.1394	0.167	1.8695	-0.3074	1.3897	0.0403	0.1394	-0.0956	55	-9.463	2.1305
		54				8.7216	0.8583	-11.1532	0.0257	0.089	0.1971	0.6784	-0.1417	0.0537	0.0257	0.089	-0.0431	55	-7.7216	-1.6784

		55				8.0057	0.8301	-11.2005	0.029	0.1003	0.1928	0.8525	-0.1699	0.2139	0.029	0.1003	-0.0519	55	-8.0057	-0.8525
		56				7.32	0.7992	-11.1977	0.0322	0.1113	0.1876	1.0567	-0.2008	0.4242	0.0322	0.1113	-0.0616	55	-8.32	-0.0567
		57				6.6665	0.7658	-11.1406	0.0351	0.1217	0.1815	1.2932	-0.2342	0.6889	0.0351	0.1217	-0.0722	55	-8.6665	**0.7068**
KPLC	129.6	89	23.32	27	0.5	50.4254	0.9963	-18.6265	0.0005	0.0102	0.3934	0.0301	-0.0037	-0.156	0.0005	0.0102	-0.0026	120.2	-19.2254	-31.2301
		99				41.6588	0.9829	-21.0402	0.0017	0.0389	0.4286	0.1629	-0.0171	-0.4944	0.0017	0.0389	-0.0119	120.2	-20.4588	-21.3629
		109				33.1973	0.9466	-23.556	0.0044	0.0996	0.4474	0.6009	-0.0534	-0.9347	0.0044	0.0996	-0.0376	120.2	-21.9973	-11.8009
		119				25.3598	0.8756	-25.6254	0.0083	0.188	0.4406	1.6628	-0.1244	-0.9288	0.0083	0.188	-0.0889	120.2	-24.1598	-2.8628
		129				18.4973	0.7675	-26.4405	0.0123	0.28	0.4048	3.6997	-0.2325	0.3314	0.0123	0.28	-0.1692	120.2	-27.2973	5.1003
		122				23.1841	0.8468	-26.0365	0.0096	0.2167	0.4328	2.157	-0.1532	-0.7174	0.0096	0.2167	-0.1101	120.2	-24.9841	-0.357
		123				22.4801	0.8364	-26.1444	0.01	0.2262	0.4296	2.3428	-0.1636	-0.6177	0.01	0.2262	-0.1177	120.2	-25.2801	**0.4572**
		124				21.7871	0.8258	-26.2365	0.0104	0.2356	0.4262	2.5398	-0.1742	-0.5023	0.0104	0.2356	-0.1256	120.2	-25.5871	1.2602
Total Kenya Ltd	41.4	**22**	23.32	39	0.5	21.8291	0.9978	-4.6208	0.0006	0.002	0.0974	0.0078	-0.0022	-0.055	0.0006	0.002	-0.0005	44.9	**1.0709**	-22.9078
		32				13.301	0.9325	-7.3916	0.0114	0.0382	0.1265	0.3791	-0.0675	-0.7505	0.0114	0.0382	-0.0159	44.9	-0.401	-13.2791
		42				6.6222	0.6945	-9.1626	0.0307	0.1026	0.1106	2.5997	-0.3055	-0.4462	0.0307	0.1026	-0.0762	44.9	-3.7222	-5.4997
		52				2.7531	0.3951	-7.5693	0.0337	0.1127	0.068	7.63	-0.6049	3.2224	0.0337	0.1127	-0.1634	44.9	-9.8531	-0.53
		62				1.0076	0.1831	-4.56	0.0232	0.0776	0.0329	14.7839	-0.8169	8.3071	0.0232	0.0776	-0.243	44.9	-18.1076	2.3161
		27				17.4504	0.9826	-5.908	0.0038	0.0126	0.1161	0.0788	-0.0174	-0.3046	0.0038	0.0126	-0.004	44.9	0.4496	-17.9788
		28				16.5948	0.9761	-6.1966	0.0049	0.0165	0.1191	0.1132	-0.0239	-0.3856	0.0049	0.0165	-0.0055	44.9	0.3052	-17.0132
		29				15.75	0.968	-6.4926	0.0063	0.021	0.1216	0.1583	-0.032	-0.4741	0.0063	0.021	-0.0074	44.9	**0.15**	-16.0583
		30				14.918	0.9581	-6.793	0.0078	0.0262	0.1237	0.2163	-0.0419	-0.567	0.0078	0.0262	-0.0098	44.9	-0.018	-15.1163
		53				2.5019	0.3688	-7.2834	0.033	0.1104	0.0638	8.2688	-0.6312	3.716	0.033	0.1104	-0.172	44.9	-10.6019	-0.1688
		54				2.2709	0.3436	-6.987	0.0322	0.1077	0.0598	8.9277	-0.6564	4.2198	0.0322	0.1077	-0.1805	44.9	-11.3709	**0.1723**
Unga Group Ltd	58.8	26	23.32	95	0.5	36.5573	0.9577	-8.1703	0.0023	0.0375	0.0988	0.8957	-0.0423	-2.7744	0.0023	0.0375	-0.0169	47	-15.5573	-21.8957
		36				29.5705	0.8925	-12.6485	0.0047	0.0769	0.1145	2.8084	-0.1075	-5.1772	0.0047	0.0769	-0.0457	47	-18.5705	-13.8084
		46				23.8164	0.8092	-16.2884	0.0069	0.1131	0.1188	5.9537	-0.1908	-6.7419	0.0069	0.1131	-0.0859	47	-22.8164	-6.9537
		56				19.183	0.7197	-18.6979	0.0085	0.14	0.1157	10.2197	-0.2803	-7.076	0.0085	0.14	-0.1335	47	-28.183	-1.2197
		66				15.49	0.6321	-19.941	0.0095	0.1567	0.1084	15.4261	-0.3679	-6.2438	0.0095	0.1567	-0.1853	47	-34.49	3.5739
		58				18.3752	0.7019	-19.0335	0.0088	0.1441	0.1145	11.1918	-0.2981	-6.9965	0.0088	0.1441	-0.1436	47	-29.3752	-0.1918
		59				17.9849	0.693	-19.1841	0.0089	0.1461	0.1138	11.6915	-0.307	-6.9396	0.0089	0.1461	-0.1487	47	-29.9849	**0.3085**
		60				17.6035	0.6842	-19.3236	0.009	0.1479	0.1131	12.2	-0.3158	-6.8716	0.009	0.1479	-0.1539	47	-30.6035	0.8
		61				17.2307	0.6754	-19.4522	0.0091	0.1496	0.1124	12.7171	-0.3246	-6.7926	0.0091	0.1496	-0.159	47	-31.2307	1.2829

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JANUARY-JUNE 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.99*	*Value of European call option*	*Value of European put option*
Brooke Bond	141	**70**	13.29	39	0.5	75.5217	0.9982	-8.8886	0.0001	0.0056	0.3262	0.0214	-0.0018	-0.1837	0.0001	0.0056	-0.0013	146.9	1.3783	-76.9214
		80				66.2474	0.9925	-10.5969	0.0005	0.0206	0.3685	0.1041	-0.0075	-0.6484	0.0005	0.0206	-0.0058	146.9	0.6526	-67.0041
		90				57.1435	0.9776	-12.7959	0.0014	0.0531	0.4035	0.3573	-0.0224	-1.6039	0.0014	0.0531	-0.0176	146.9	-0.2435	-57.2573
		100				48.3789	0.9479	-15.4771	0.0027	0.1063	0.4264	0.9499	-0.0521	-3.0415	0.0027	0.1063	-0.0415	146.9	-1.4789	-47.8499
		110				40.1585	0.8996	-18.3651	0.0045	0.1755	0.4334	2.0865	-0.1004	-4.6859	0.0045	0.1755	-0.0812	146.9	-3.2585	-38.9865
		120				32.6775	0.8324	-21.0059	0.0064	0.25	0.4234	3.9626	-0.1676	-6.0832	0.0064	0.25	-0.138	146.9	-5.7775	-30.8626
		180				6.6282	0.3062	-18.5007	0.009	0.3498	0.1827	34.056	-0.6938	3.8833	0.009	0.3498	-0.6594	146.9	-39.7282	-0.956
		190				4.8555	0.2411	-15.9915	0.008	0.3107	0.1457	41.6404	-0.7589	7.6361	0.008	0.3107	-0.7432	146.9	-47.9555	1.4596
		200				3.5255	0.1871	-13.4885	0.0069	0.268	0.1143	49.6674	-0.8129	11.3827	0.0069	0.268	-0.8214	146.9	-56.6255	3.4326
		85				61.6648	0.9866	-11.6295	0.0009	0.0343	0.3872	0.2002	-0.0134	-1.0592	0.0009	0.0343	-0.0105	146.9	0.2352	-62.1002
		86				60.755	0.9851	-11.8521	0.001	0.0376	0.3907	0.226	-0.0149	-1.1575	0.001	0.0376	-0.0117	146.9	0.145	-61.126
		87				59.8477	0.9834	-12.0801	0.0011	0.0412	0.3941	0.2545	-0.0166	-1.2611	0.0011	0.0412	-0.013	146.9	**0.0523**	-60.1545
		88				58.9433	0.9816	-12.3134	0.0012	0.0449	0.3973	0.2857	-0.0184	-1.3701	0.0012	0.0449	-0.0144	146.9	-0.0433	-59.1857
		183				6.0435	0.2855	-17.7586	0.0087	0.3388	0.1711	36.2784	-0.7145	4.9985	0.0087	0.3388	-0.6851	146.9	-42.1435	-0.1784
		184				5.8591	0.2788	-17.5084	0.0086	0.3349	0.1673	37.0297	-0.7212	5.3731	0.0086	0.3349	-0.6936	146.9	-42.9591	**0.0703**
		185				5.6798	0.2723	-17.257	0.0085	0.331	0.1635	37.7861	-0.7277	5.7488	0.0085	0.331	-0.702	146.9	-43.7798	0.3139
Eaagads Ltd	43.2	14	13.29	60	0.5	30.1073	0.9988	-1.8083	0.0002	0.0013	0.0652	0.0072	-0.0012	-0.0673	0.0002	0.0013	-0.0003	42.1	-2.0073	-28.1072
		24				21.0889	0.9603	-4.2804	0.0047	0.0262	0.102	0.3459	-0.0397	-1.2959	0.0047	0.0262	-0.0103	42.1	-2.9889	-18.4459
		34				13.5264	0.8246	-7.6675	0.0141	0.0788	0.1105	2.1405	-0.1754	-3.4394	0.0141	0.0788	-0.0486	42.1	-5.4264	-10.2405
		44				8.1462	0.6276	-9.4552	0.0206	0.1156	0.0948	6.1174	-0.3724	-3.9836	0.0206	0.1156	-0.111	42.1	-10.0462	-4.2174
		54				4.7305	0.4375	-9.1055	0.0215	0.1204	0.0709	12.0588	-0.5625	-2.3903	0.0215	0.1204	-0.1818	42.1	-16.6305	-0.1588
		64				2.6994	0.2885	-7.5568	0.0186	0.1043	0.0488	19.3848	-0.7115	0.402	0.0186	0.1043	-0.2506	42.1	-24.5994	2.5152
		55				4.4749	0.4206	-8.9863	0.0213	0.1194	0.0685	12.7389	-0.5794	-2.1468	0.0213	0.1194	-0.1889	42.1	-17.3749	**0.1611**
George Williamson	141	87	13.29	22	0.5	59.5941	0.9998	-10.829	0	0.0006	0.4069	0.0009	-0.0002	-0.01	0	0.0006	-0.0001	143	-3.5941	-56.0009
		97				50.2482	0.9982	-12.154	0.0003	0.0058	0.4525	0.012	-0.0018	-0.0915	0.0003	0.0058	-0.0013	143	-4.2482	-46.012
		107				40.9689	0.9887	-13.734	0.0014	0.0297	0.4922	0.0899	-0.0113	-0.4279	0.0014	0.0297	-0.0084	143	-4.9689	-36.0899
		117				31.9428	0.9558	-15.7139	0.0043	0.0931	0.5142	0.4209	-0.0442	-1.1643	0.0043	0.0931	-0.0332	143	-5.9428	-26.4209
		127				23.5456	0.8804	-17.7457	0.0091	0.1989	0.503	1.3807	-0.1196	-1.9525	0.0091	0.1989	-0.0912	143	-7.5456	-17.3807
		137				16.2606	0.7549	-18.8818	0.0143	0.3135	0.4509	3.4529	-0.2451	-1.8451	0.0143	0.3135	-0.1901	143	-10.2606	-9.4529
		147				10.4692	0.5937	-18.2419	0.0177	0.3867	0.3662	7.0185	-0.4063	0.0384	0.0177	0.3867	-0.3215	143	-14.4692	-3.0185
		157				6.2797	0.4262	-15.7528	0.0179	0.3909	0.2691	12.1861	-0.5738	3.771	0.0179	0.3909	-0.4654	143	-20.2797	1.8139
		152				8.1795	0.5088	-17.1956	0.0182	0.3977	0.3178	9.4074	-0.4912	1.7064	0.0182	0.3977	-0.3933	143	-17.1795	-0.4074
		153				7.7691	0.492	-16.9354	0.0182	0.3977	0.308	9.9327	-0.508	2.091	0.0182	0.3977	-0.4078	143	-17.7691	**0.0673**
Kakuzi Ltd	141	80	13.29	27	0.5	66.1456	0.9997	-9.974	0	0.0012	0.374	0.0023	-0.0003	-0.0255	0	0.0012	-0.0002	120.4	-25.7456	-40.4023
		90				56.8081	0.9974	-11.3565	0.0003	0.008	0.4191	0.022	-0.0026	-0.1645	0.0003	0.008	-0.0019	120.4	-26.4081	-30.422
		100				47.5528	0.9876	-13.0536	0.0012	0.0321	0.4585	0.1238	-0.0124	-0.618	0.0012	0.0321	-0.0094	120.4	-27.1528	-20.5238
		110				38.5467	0.9594	-15.2028	0.0032	0.0869	0.4837	0.4748	-0.0406	-1.5236	0.0032	0.0869	-0.031	120.4	-28.1467	-10.8748
		120				30.0785	0.9012	-17.5735	0.0065	0.1735	0.4849	1.3637	-0.0988	-2.6508	0.0065	0.1735	-0.0765	120.4	-29.6785	-1.7637
		130				22.4979	0.8076	-19.5052	0.0102	0.2727	0.4568	3.1402	-0.1924	-3.3389	0.0102	0.2727	-0.1514	120.4	-32.0979	6.4598
		122				28.4804	0.8852	-18.0207	0.0072	0.1932	0.4817	1.637	-0.1148	-2.8493	0.0072	0.1932	-0.0891	120.4	-30.0804	-0.037
		123				27.6956	0.8767	-18.2357	0.0076	0.2032	0.4796	1.7879	-0.1233	-2.94	0.0076	0.2032	-0.0958	120.4	-30.2956	**0.8121**
		124				26.9208	0.8679	-18.444	0.0079	0.2133	0.4773	1.9488	-0.1321	-3.0238	0.0079	0.2133	-0.1029	120.4	-30.5208	1.6512
		125				26.1562	0.8587	-18.6446	0.0083	0.2233	0.4746	2.1199	-0.1413	-3.1001	0.0083	0.2233	-0.1102	120.4	-30.7562	2.4801
Kapchorua Tea Co	95	91	13.29	24	0.5	12.2368	0.7673	-12.9887	0.019	0.2053	0.3033	2.3863	-0.2327	-1.6723	0.019	0.2053	-0.1225	150	46.7632	-61.3863
		101				6.657	0.546	-12.3976	0.0246	0.2662	0.2261	6.1637	-0.454	0.1623	0.0246	0.2662	-0.2465	150	42.343	-55.1637

		111				3.197	0.3297	-9.5739	0.0225	0.2432	0.1406	12.0608	-0.6703	4.2296	0.0225	0.2432	-0.3787	150	35.803	-51.0608
		121				1.3709	0.1713	-6.08	0.0158	0.1708	0.0745	19.5918	-0.8287	8.9671	0.0158	0.1708	-0.4916	150	27.6291	-48.5918
		131				0.5331	0.0782	-3.2739	0.0091	0.0982	0.0345	28.111	-0.9218	13.0167	0.0091	0.0982	-0.5784	150	18.4669	-47.111
		141				0.191	0.0321	-1.541	0.0045	0.0484	0.0143	37.1261	-0.9679	15.9931	0.0045	0.0484	-0.6454	150	8.809	-46.1261
		151				0.064	0.0121	-0.651	0.002	0.0211	0.0054	46.3561	-0.9879	18.1267	0.002	0.0211	-0.701	150	-1.064	-45.3561
		149				0.08	0.0148	-0.7793	0.0023	0.0251	0.0066	44.5007	-0.9852	17.7497	0.0023	0.0251	-0.6905	150	**0.92**	-45.5007
		150				0.0716	0.0134	-0.7126	0.0021	0.0231	0.006	45.428	-0.9866	17.9408	0.0021	0.0231	-0.6958	150	-0.0716	-45.428
Limuru Tea Co	760	589	13.29	16	0.5	208.9155	0.9981	-73.5653	0.0001	0.0323	2.7483	0.0486	-0.0019	-0.3197	0.0001	0.0323	-0.0074	650	-147.9155	-61.0486
		599				199.5902	0.997	-74.9618	0.0001	0.0491	2.7907	0.0803	-0.003	-0.4726	0.0001	0.0491	-0.0118	650	-148.5902	-51.0803
		609				190.2822	0.9954	-76.4098	0.0002	0.0727	2.831	0.1294	-0.0046	-0.6771	0.0002	0.0727	-0.0183	650	-149.2822	-41.1294
		619				180.9989	0.993	-77.9167	0.0002	0.1046	2.8684	0.2032	-0.007	-0.9405	0.0002	0.1046	-0.0276	650	-149.9989	-31.2032
		629				171.7499	0.9897	-79.4873	0.0003	0.1467	2.9022	0.3113	-0.0103	-1.2675	0.0003	0.1467	-0.0406	650	-150.7499	-21.3113
		639				162.5475	0.9852	-81.1213	0.0004	0.2006	2.9312	0.466	-0.0148	-1.658	0.0004	0.2006	-0.0584	650	-151.5475	-11.466
		649				153.4067	0.9793	-82.8121	0.0006	0.2679	2.9543	0.6823	-0.0207	-2.1052	0.0006	0.2679	-0.0821	650	-152.4067	-1.6823
		659				144.3458	0.9716	-84.5444	0.0008	0.3498	2.9702	0.9785	-0.0284	-2.5939	0.0008	0.3498	-0.113	650	-153.3458	8.0215
		650				152.4967	0.9786	-82.9838	0.0006	0.2754	2.9562	0.708	-0.0214	-2.1525	0.0006	0.2754	-0.0848	650	-152.4967	-0.708
		651				151.5875	0.9779	-83.1559	0.0006	0.2831	2.9581	0.7345	-0.0221	-2.2002	0.0006	0.2831	-0.0876	650	-152.5875	**0.2655**
Rea Vipingo Ltd	6	4	13.29	20	0.5	2.2572	0.9997	-0.4982	0.0014	0.0001	0.0187	0.0001	-0.0003	-0.0007	0.0014	0.0001	0	6	-0.2572	-2.0001
		5				1.3333	0.9664	-0.6568	0.0881	0.0032	0.0223	0.0118	-0.0336	-0.0351	0.0881	0.0032	-0.0011	6	-0.3333	-1.0118
		6				0.5556	0.7056	-0.7813	0.4062	0.0146	0.0184	0.1699	-0.2944	-0.0352	0.4062	0.0146	-0.0097	6	-0.5556	-0.1699
		7				0.1445	0.2914	-0.5042	0.4043	0.0146	0.008	0.6945	-0.7086	0.3663	0.4043	0.0146	-0.0247	6	-1.1445	**0.3055**
Sasini Tea & Coffe	69.8	40	13.29	27	0.5	32.373	0.9996	-4.9892	0.0001	0.0007	0.187	0.0014	-0.0004	-0.015	0.0001	0.0007	-0.0001	54	-18.373	-14.0014
		50				23.0857	0.9858	-6.5586	0.0027	0.0179	0.2286	0.0712	-0.0142	-0.3408	0.0027	0.0179	-0.0053	54	-19.0857	-4.0712
		60				14.4117	0.8918	-8.8339	0.0139	0.0917	0.2392	0.7543	-0.1082	-1.3726	0.0139	0.0917	-0.0415	54	-20.4117	5.2457
		54				19.4822	0.9631	-7.4203	0.0061	0.0398	0.2387	0.2105	-0.0369	-0.7051	0.0061	0.0398	-0.0139	54	-19.4822	-0.2105
		55				18.6034	0.9546	-7.6544	0.0072	0.0471	0.2402	0.2674	-0.0454	-0.8148	0.0072	0.0471	-0.0172	54	-19.6034	**0.7326**

SIMULATION OF OPTION VALUES USING BOPSCOL
COMMERCIAL AND SERVICES SECTOR-JANUARY-JUNE 1999

Company	Stock price	Exercise price	Rf	V	t	Call price	Call delta	Call theta	Call gamma	Call vega	Call rho	Put price	Put delta	Put theta	Put gamma	Put vega	Put rho	Stock price at expiration 30.6.99	Value of European call option	Value of European put option
A Baumann & Co	16.9	14	13.29	12	0.5	3.8005	0.9988	-1.7439	0.0027	0.0005	0.0654	0.0005	-0.0012	-0.0029	0.0027	0.0005	-0.0001	16.9	-0.9005	-2.9005
		15				2.8709	0.9872	-1.8831	0.0231	0.004	0.0691	0.0066	-0.0128	-0.0178	0.0231	0.004	-0.0011	16.9	-0.9709	-1.9066
		16				1.9751	0.9293	-2.0187	0.0944	0.0162	0.0686	0.0465	-0.0707	-0.029	0.0944	0.0162	-0.0062	16.9	-1.0751	-0.9465
		17				1.1871	0.7752	-2.0132	0.209	0.0358	0.0596	0.1941	-0.2248	0.1009	0.209	0.0358	-0.02	16.9	-1.2871	-0.0941
		18				0.6	0.5328	-1.6872	0.2773	0.0475	0.042	0.5428	-0.4672	0.5512	0.2773	0.0475	-0.02	16.9	-1.7	**0.5572**
CMC Holdings Ltd	33	25	13.29	16	0.5	9.6083	0.999	-3.1168	0.0009	0.0008	0.1168	0.001	-0.001	-0.0079	0.0009	0.0008	-0.0002	28	-6.6083	-3.001
		35				1.6115	0.5493	-3.6729	0.106	0.0924	0.0826	1.3613	-0.4507	0.6796	0.106	0.0924	-0.0812	28	-8.6115	5.6387
		28				6.8255	0.982	-3.565	0.0119	0.0103	0.1279	0.0254	-0.018	-0.0831	0.0119	0.0103	-0.0031	28	-6.8255	-0.0254
		29				5.922	0.9629	-3.7384	0.0217	0.0189	0.1293	0.0575	-0.0371	-0.1321	0.0217	0.0189	-0.0064	28	-6.922	**0.9425**
		30				5.0468	0.9314	-3.9077	0.0354	0.0308	0.1284	0.1181	-0.0686	-0.177	0.0354	0.0308	-0.0119	28	-7.0468	1.8819
Car & General	12	2	13.29	105	0.5	10.1352	0.998	-0.3018	0.0007	0.0005	0.0092	0.0066	-0.002	-0.0531	0.0007	0.0005	-0.0002	10	-2.1352	-8.0066
		12				3.7613	0.6775	-3.7771	0.0403	0.0304	0.0218	2.9898	-0.3225	-2.2848	0.0403	0.0304	-0.0343	10	-5.7613	-0.9898
		22				1.5314	0.361	-3.7088	0.042	0.0318	0.014	10.117	-0.639	-0.973	0.042	0.0318	-0.0889	10	-13.5314	1.883
		14				3.1078	0.5999	-3.986	0.0434	0.0328	0.0205	4.2078	-0.4001	-2.2451	0.0434	0.0328	-0.045	10	-7.1078	-0.2078
		15				2.8309	0.5636	-4.0317	0.0442	0.0334	0.0197	4.8666	-0.4364	-2.1664	0.0442	0.0334	-0.0505	10	-7.8309	**0.1334**
		16				2.5824	0.5292	-4.0456	0.0447	0.0338	0.0188	5.5537	-0.4708	-2.0559	0.0447	0.0338	-0.056	10	-8.5824	0.4463
		17				2.3589	0.4967	-4.0328	0.0448	0.0339	0.018	6.266	-0.5033	-1.9188	0.0448	0.0339	-0.0615	10	-9.3589	0.734
Express Kenya Ltd	28.6	11	13.29	49	0.5	18.3099	0.9991	-1.3943	0.0003	0.0006	0.0513	0.0027	-0.0009	-0.0264	0.0003	0.0006	-0.0001	25.5	-3.8099	-14.5027
		21				9.5269	0.8955	-3.933	0.0183	0.0366	0.0804	0.5769	-0.1045	-1.3215	0.0183	0.0366	-0.0178	25.5	-5.0269	-5.0769
		31				3.7613	0.5527	-5.5196	0.0399	0.08	0.0602	4.1683	-0.4473	-1.6646	0.0399	0.08	-0.0848	25.5	-9.2613	1.3317
		26				6.1603	0.7389	-5.2109	0.0328	0.0657	0.0749	1.8888	-0.2611	-1.9777	0.0328	0.0657	-0.0468	25.5	-6.6603	-1.3888
		27				5.6042	0.7024	-5.3579	0.035	0.0701	0.0724	2.2683	-0.2976	-2.0003	0.035	0.0701	-0.0539	25.5	-7.1042	-0.7683
		28				5.0873	0.665	-5.4616	0.0368	0.0737	0.0697	2.6871	-0.335	-1.9797	0.0368	0.0737	-0.0613	25.5	-7.5873	-0.1871
		29				4.6087	0.6274	-5.5222	0.0382	0.0765	0.0667	3.1442	-0.3726	-1.9158	0.0382	0.0765	-0.069	25.5	-8.1087	**0.3558**
Kenya Airways	8.1	4	13.29	39	0.5	4.3583	0.9983	-0.5074	0.0024	0.0003	0.0186	0.0011	-0.0017	-0.01	0.0024	0.0003	-0.0001	8	-0.3583	-4.0011
		5				3.4361	0.9833	-0.6945	0.0186	0.0024	0.0226	0.0147	-0.0167	-0.0727	0.0186	0.0024	-0.0007	8	-0.4361	-3.0147
		6				2.5648	0.9288	-0.9628	0.0609	0.0078	0.0248	0.079	-0.0712	-0.2167	0.0609	0.0078	-0.0033	8	-0.5648	-2.079
		7				1.803	0.8181	-1.2311	0.1183	0.0151	0.0241	0.253	-0.1819	-0.3606	0.1183	0.0151	-0.0086	8	-0.803	-1.253
		8				1.1963	0.6642	-1.3706	0.1633	0.0209	0.0209	0.582	-0.3358	-0.3757	0.1633	0.0209	-0.0165	8	-1.1963	-0.582
		9				0.7542	0.4987	-1.3278	0.1786	0.0228	0.0164	1.0756	-0.5013	-0.2086	0.1786	0.0228	-0.0257	8	-1.7542	-0.0756
		10				0.4557	0.35	-1.1436	0.1658	0.0212	0.0119	1.7128	-0.65	0.0999	0.1658	0.0212	-0.0349	8	-2.4557	**0.2872**
Lonhro Motors	22	10	13.29	38	0.5	12.6437	0.9995	-1.2518	0.0003	0.0003	0.0467	0.0008	-0.0005	-0.0082	0.0003	0.0003	-0.0001	17	-5.6437	-7.0008
		20				4.198	0.7692	-3.4895	0.0515	0.0473	0.0636	0.9122	-0.2308	-1.0024	0.0515	0.0473	-0.0299	17	-7.198	2.0878
		15				8.056	0.9646	-2.2106	0.0132	0.0121	0.0658	0.0917	-0.0354	-0.3452	0.0132	0.0121	-0.0044	17	-6.056	-2.0917
		16				7.194	0.9414	-2.4875	0.0198	0.0182	0.0676	0.1653	-0.0586	-0.4978	0.0198	0.0182	-0.0073	17	-6.194	-1.1653
		17				6.3693	0.9101	-2.7738	0.0275	0.0252	0.0683	0.2764	-0.0899	-0.6597	0.0275	0.0252	-0.0113	17	-6.3693	-0.2764
		18				5.5905	0.8704	-3.0496	0.0357	0.0328	0.0678	0.4333	-0.1296	-0.8112	0.0357	0.0328	-0.0164	17	-6.5905	**0.5667**
Marshalls EA Ltd	25	18	13.29	19	0.5	8.1585	0.9987	-2.2484	0.0013	0.0008	0.084	0.0013	-0.0013	-0.01	0.0013	0.0008	-0.0002	22	-4.1585	-4.0013

		28				0.8536	0.3891	-2.467	0.1142	0.0678	0.0444	2.0535	-0.6109	1.0149	0.1142	0.0678	-0.0866	22	-6.8536	3.9465
		22				4.5151	0.9349	-2.9325	0.0378	0.0224	0.0943	0.1007	-0.0651	-0.1967	0.0378	0.0224	-0.0086	22	-4.5151	-0.1007
		23				3.6858	0.8815	-3.1049	0.059	0.0351	0.0918	0.2072	-0.1185	-0.2447	0.059	0.0351	-0.0159	22	-4.6858	**0.7928**
Nation Media Grou	137.7	87	13.29	22	0.5	56.2948	0.9997	-10.8355	0	0.001	0.4068	0.0015	-0.0003	-0.0165	0	0.001	-0.0002	130	-13.2948	-43.0015
		97				46.9558	0.9971	-12.1975	0.0004	0.0087	0.4517	0.0197	-0.0029	-0.135	0.0004	0.0087	-0.0021	130	-13.9558	-33.0197
		107				37.7147	0.9833	-13.8728	0.0019	0.0405	0.4884	0.1357	-0.0167	-0.5667	0.0019	0.0405	-0.0122	130	-14.7147	-23.1357
		117				28.814	0.9397	-15.9294	0.0056	0.1165	0.5029	0.5921	-0.0603	-1.3798	0.0056	0.1165	-0.0445	130	-15.814	-13.5921
		127				20.6931	0.8473	-17.8099	0.011	0.2297	0.4799	1.8282	-0.1527	-2.0167	0.011	0.2297	-0.1143	130	-17.6931	-4.8282
		137				13.8508	0.7046	-18.4493	0.0161	0.3362	0.4159	4.3431	-0.2954	-1.4126	0.0161	0.3362	-0.2251	130	-20.8508	2.6569
		132				17.0854	0.7813	-18.3485	0.0138	0.2873	0.4525	2.8991	-0.2187	-1.9336	0.0138	0.2873	-0.165	130	-19.0854	-0.8991
		133				16.4073	0.7667	-18.4068	0.0143	0.298	0.4459	3.1567	-0.2333	-1.8675	0.0143	0.298	-0.1764	130	-19.4073	-0.1567
		134				15.7445	0.7518	-18.4466	0.0148	0.3083	0.4389	3.4296	-0.2482	-1.7829	0.0148	0.3083	-0.1881	130	-19.7445	**0.5704**
Pearl Drycleaners	10	1	13.29	120	0.5	9.0662	0.9994	-0.1424	0.0003	0.0002	0.0046	0.0019	-0.0006	-0.0181	0.0003	0.0002	0	10	-0.0662	-9.0019
		11				3.1898	0.6518	-3.5793	0.0436	0.0261	0.0166	3.4826	-0.3482	-2.2114	0.0436	0.0261	-0.0348	10	-4.1898	-2.4826
		21				1.3657	0.355	-3.4494	0.0439	0.0263	0.0109	11.0156	-0.645	-0.8379	0.0439	0.0263	-0.0873	10	-12.3657	-0.0156
		22				1.2665	0.3348	-3.3673	0.0429	0.0258	0.0104	11.8521	-0.6652	-0.6315	0.0429	0.0258	-0.0925	10	-13.2665	0.1479
Standard Newspap	21.3	2	13.29	112	0.5	19.43	0.9997	-0.2643	0.0001	0.0001	0.0093	0.0014	-0.0003	-0.0156	0.0001	0.0001	0	14	-7.43	-11.9997
		12				11.4564	0.8858	-4.2432	0.0115	0.0291	0.0371	1.385	-0.1142	-2.7509	0.0115	0.0291	-0.0191	14	-9.4564	-3.385
		22				6.8107	0.6697	-7.1019	0.0215	0.0546	0.0373	6.0964	-0.3303	-4.3661	0.0215	0.0546	-0.0657	14	-14.8107	1.9036
		17				8.786	0.7777	-6.0579	0.0177	0.0449	0.0389	3.3931	-0.2223	-3.9438	0.0177	0.0449	-0.0406	14	-11.786	-0.3931
		18				8.342	0.7557	-6.3256	0.0186	0.0473	0.0388	3.8847	-0.2443	-4.0872	0.0186	0.0473	-0.0454	14	-12.342	**0.1153**
TPS Serena	14.5	12	13.29	16	0.5	3.2774	0.9897	-1.5164	0.0166	0.0028	0.0554	0.0059	-0.0103	-0.0242	0.0166	0.0028	-0.0008	16.1	0.8226	-4.1059
		13				2.3748	0.9462	-1.6871	0.0666	0.0112	0.0567	0.039	-0.0538	-0.0705	0.0666	0.0112	-0.0041	16.1	0.7252	-3.139
		14				1.5572	0.83	-1.8076	0.1543	0.0259	0.0524	0.1572	-0.17	-0.0666	0.1543	0.0259	-0.0131	16.1	0.5428	-2.2572
		15				0.9022	0.6347	-1.7199	0.2292	0.0386	0.0415	0.4379	-0.3653	0.1454	0.2292	0.0386	-0.0287	16.1	0.1978	-1.5379
		16				0.4554	0.4105	-1.3685	0.237	0.0399	0.0275	0.9268	-0.5895	0.6212	0.237	0.0399	-0.0474	16.1	-0.3554	-1.0268
		17				0.1997	0.223	-0.8928	0.1819	0.0306	0.0152	1.6067	-0.777	1.2213	0.1819	0.0306	-0.0644	16.1	-1.0997	-0.7067
		18				0.0764	0.1025	-0.4806	0.1089	0.0183	0.0071	2.4192	-0.8975	1.7578	0.1089	0.0183	-0.0772	16.1	-1.9764	-0.5192
		19				0.0258	0.0405	-0.2173	0.053	0.0089	0.0028	3.3043	-0.9595	2.1454	0.053	0.0089	-0.0861	16.1	-2.9258	-0.4043
Uchumi Supermark	44	30	13.29	27	0.5	15.9496	0.9928	-3.8529	0.0024	0.0062	0.1387	0.0209	-0.0072	-0.1222	0.0024	0.0062	-0.0017	48.2	2.2504	-18.2209
		40				7.4255	0.8271	-5.9986	0.0305	0.0796	0.1448	0.8539	-0.1729	-1.0244	0.0305	0.0796	-0.0423	48.2	0.7745	-9.0539
		50				2.2357	0.4106	-5.3705	0.0463	0.121	0.0791	5.0212	-0.5894	0.8473	0.0463	0.121	-0.1548	48.2	-4.0357	-3.2212
		60				0.4527	0.1188	-2.303	0.0236	0.0618	0.0239	12.5952	-0.8812	5.1583	0.0236	0.0618	-0.2568	48.2	-12.2527	-0.7952
		41				6.7202	0.792	-6.1456	0.0341	0.0892	0.1406	1.0843	-0.208	-1.047	0.0341	0.0892	-0.0512	48.2	0.4798	-8.2843
		42				6.0541	0.754	-6.2511	0.0375	0.098	0.1356	1.3539	-0.246	-1.0281	0.0375	0.098	-0.0609	48.2	**0.1459**	-7.5539
		43				5.4292	0.7136	-6.3099	0.0405	0.1059	0.1298	1.6647	-0.2864	-0.9626	0.0405	0.1059	-0.0713	48.2	-0.2292	-6.8647
		61				0.3792	0.1025	-2.0495	0.0213	0.0556	0.0206	13.4574	-0.8975	5.5362	0.0213	0.0556	-0.2647	48.2	-13.1792	-0.6574
		62				0.3167	0.0881	-1.8151	0.019	0.0497	0.0178	14.3307	-0.9119	5.8949	0.019	0.0497	-0.2723	48.2	-14.1167	-0.5307

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JANUARY-JUNE 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.99*	*Value of European call option*	*Value of European put option*
Barclays Bank	126.3	89	13.3	20	0.5	43.0285	0.9987	-11.1208	0.0002	0.0038	0.4155	0.0067	-0.0013	-0.0531	0.0002	0.0038	-0.0008	109.6	-22.4285	-20.6067
		99				33.7411	0.9882	-12.6535	0.0017	0.0275	0.4553	0.0763	-0.0118	-0.3423	0.0017	0.0275	-0.0079	109.6	-23.1411	-10.6763
		109				24.765	0.9432	-14.5786	0.0064	0.1019	0.4718	0.4574	-0.0568	-1.0239	0.0064	0.1019	-0.0382	109.6	-24.165	-1.0574
		119				16.6607	0.8319	-16.2369	0.0141	0.2244	0.442	1.7101	-0.1681	-1.4385	0.0141	0.2244	-0.1147	109.6	-26.0607	7.6899
		110				23.9037	0.9355	-14.7775	0.0071	0.1126	0.4712	0.5318	-0.0645	-1.0984	0.0071	0.1126	-0.0434	109.6	-24.3037	-0.1318
		111				23.0517	0.927	-14.9733	0.0078	0.1239	0.4701	0.6155	-0.073	-1.1698	0.0078	0.1239	-0.0492	109.6	-24.4517	**0.7845**
		112				22.2098	0.9178	-15.1644	0.0085	0.1355	0.4685	0.7093	-0.0822	-1.2365	0.0085	0.1355	-0.0555	109.6	-24.6098	1.6907
		113				21.3787	0.9078	-15.3493	0.0093	0.1476	0.4664	0.8139	-0.0922	-1.2971	0.0093	0.1476	-0.0623	109.6	-24.7787	2.5861
		114				20.5591	0.8971	-15.5265	0.01	0.1601	0.4637	0.93	-0.1029	-1.3499	0.01	0.1601	-0.0696	109.6	-24.9591	3.47
City Trust Ltd	26.1	20	13.3	14	0.5	7.386	0.9997	-2.489	0.0005	0.0002	0.0935	0.0002	-0.0003	-0.0019	0.0005	0.0002	0	22.5	-4.886	-2.5002
		30				0.3601	0.2464	-1.6213	0.122	0.0582	0.0303	2.3314	-0.7536	2.1094	0.122	0.0582	-0.11	22.5	-7.8601	5.1686
		22				5.5207	0.9928	-2.7616	0.0077	0.0037	0.102	0.0063	-0.0072	-0.0258	0.0077	0.0037	-0.001	22.5	-5.0207	-0.5063
		23				4.6015	0.9771	-2.9179	0.021	0.01	0.1045	0.0228	-0.0229	-0.0577	0.021	0.01	-0.0031	22.5	-5.1015	**0.4772**
		24				3.7102	0.9416	-3.0744	0.0452	0.0215	0.1043	0.0673	-0.0584	-0.0898	0.0452	0.0215	-0.008	22.5	-5.2102	1.4327
		25				2.8729	0.8761	-3.1857	0.0792	0.0378	0.1	0.1657	-0.1239	-0.0768	0.0792	0.0378	-0.017	22.5	-5.3729	2.3343
CFC Bank	15.6	8	13.3	43	0.5	8.1228	0.9949	-1.0533	0.0031	0.0016	0.037	0.0085	-0.0051	-0.0584	0.0031	0.0016	-0.0004	15.1	-1.0228	-7.1085
		18				1.4002	0.4601	-2.6508	0.0837	0.0438	0.0289	2.6429	-0.5399	-0.4123	0.0837	0.0438	-0.0553	15.1	-4.3002	**0.2571**
		17				1.7539	0.535	-2.7611	0.0838	0.0438	0.033	2.061	-0.465	-0.6471	0.0838	0.0438	-0.0466	15.1	-3.6539	-0.161
Diamond Trust Banl	22	17	13.3	25	0.5	6.1361	0.9727	-2.2729	0.0162	0.0098	0.0763	0.0431	-0.0273	-0.1589	0.0162	0.0098	-0.0032	23.9	0.7639	-6.9431
		27				0.5153	0.2438	-1.8636	0.0806	0.0488	0.0242	3.7795	-0.7562	1.494	0.0806	0.0488	-0.1021	23.9	-3.6153	-0.6795
		20				3.6354	0.8422	-2.917	0.062	0.0375	0.0745	0.3496	-0.1578	-0.4299	0.062	0.0375	-0.0191	23.9	**0.2646**	-4.2496
		21				2.9304	0.7665	-3.0425	0.0787	0.0476	0.0697	0.5803	-0.2335	-0.4311	0.0787	0.0476	-0.0286	23.9	-0.0304	-3.4803
		22				2.3113	0.6788	-3.0704	0.0921	0.0557	0.0631	0.8969	-0.3212	-0.3346	0.0921	0.0557	-0.0398	23.9	-0.4113	-2.7969
		31				0.1126	0.07	-0.712	0.0345	0.0209	0.0071	7.1196	-0.93	3.143	0.0345	0.0209	-0.1379	23.9	-7.2126	-0.0196
		32				0.0743	0.0489	-0.5274	0.0261	0.0158	0.005	8.017	-0.9511	3.4519	0.0261	0.0158	-0.1447	23.9	-8.1743	**0.083**
Housing Finance Cc of Kenya	16.1	9	13.3	28	0.5	7.6789	0.9996	-1.1227	0.0004	0.0002	0.0421	0.0003	-0.0004	-0.0035	0.0004	0.0002	0	13.1	-3.5789	-4.1003
		19				0.66	0.3439	-1.8211	0.1154	0.0419	0.0244	2.3385	-0.6561	0.5416	0.1154	0.0419	-0.0645	13.1	-6.56	3.5615
		13				4.0335	0.9351	-1.8685	0.0397	0.0144	0.0551	0.0978	-0.0649	-0.2519	0.0397	0.0144	-0.0057	13.1	-3.9335	-0.1978
		14				3.2206	0.873	-2.1035	0.0653	0.0237	0.0542	0.2205	-0.127	-0.3625	0.0653	0.0237	-0.0113	13.1	-4.1206	**0.6795**
ICDC Investments Co Ltd	42	43	13.3	8	0.5	2.0649	0.7844	-4.7991	0.1232	0.0869	0.1544	0.3004	-0.2156	0.5482	0.1232	0.0869	-0.0468	48.3	3.2351	-5.6004
		53				0.0012	0.0018	-0.0237	0.0024	0.0017	0.0004	7.5938	-0.9982	6.5671	0.0024	0.0017	-0.2476	48.3	-4.7012	-2.8938
		47				0.2852	0.2161	-1.8647	0.1234	0.087	0.044	2.2636	-0.7839	3.98	0.1234	0.087	-0.1759	48.3	1.0148	-3.5636
		48				0.1419	0.1235	-1.1557	0.0859	0.0606	0.0252	3.0559	-0.8765	4.8134	0.0859	0.0606	-0.1993	48.3	**0.1581**	-3.3559
		49				0.0648	0.064	-0.6462	0.0527	0.0372	0.0131	3.9146	-0.936	5.4472	0.0527	0.0372	-0.2161	48.3	-0.7648	-3.2146
Jubilee Insurance	30.3	20	13.3	23	0.5	11.5875	0.9988	-2.5013	0.0008	0.0008	0.0934	0.0017	-0.0012	-0.0142	0.0008	0.0008	-0.0002	28.4	-3.1875	-8.4017

Co Ltd		**30**				3.2103	0.7092	-4.1182	0.0696	0.0734	0.0914	0.9816	-0.2908	-0.3875	0.0696	0.0734	-0.049	28.4	-4.8103	**0.6184**
		25				7.0098	0.9528	-3.3907	0.02	0.0211	0.1093	0.1026	-0.0472	-0.2819	0.02	0.0211	-0.0077	28.4	-3.6098	-3.5026
		26				6.1519	0.9238	-3.6085	0.0291	0.0307	0.1092	0.1803	-0.0762	-0.3753	0.0291	0.0307	-0.0124	28.4	-3.7519	-2.5803
		27				5.3334	0.8847	-3.812	0.0395	0.0417	0.1074	0.2975	-0.1153	-0.4544	0.0395	0.0417	-0.019	28.4	-3.9334	-1.6975
		28				4.5645	0.8353	-3.9788	0.0503	0.0531	0.1037	0.4644	-0.1647	-0.4969	0.0503	0.0531	-0.0273	28.4	-4.1645	-0.8644
		29				3.8544	0.7762	-4.0869	0.0607	0.0641	0.0983	0.69	-0.2238	-0.4805	0.0607	0.0641	-0.0374	28.4	-4.4544	-0.09
KCB Ltd	61.6	35	13.3	23	0.5	28.8502	1	-4.3537	0	0.0093	0.0093	0.0001	0	-0.0012	0	0.0001	0	43.9	-19.9502	-8.9001
		45				19.52	0.9923	-5.7425	0.0021	0.0093	0.208	0.0269	-0.0077	-0.1465	0.0021	0.0093	-0.0025	43.9	-20.62	0.892
		43				21.3756	0.9965	-5.4218	0.001	0.0045	0.2001	0.0111	-0.0035	-0.0745	0.001	0.0045	-0.0011	43.9	-20.4756	-0.9111
		44				20.4463	0.9947	-5.5777	0.0015	0.0066	0.2042	0.0175	-0.0053	-0.106	0.0015	0.0066	-0.0017	43.9	-20.5463	**0.0825**
National Bank Ltd	8.6	5	13.3	29	0.5	3.922	0.9989	-0.6268	0.002	0.0002	0.0233	0.0006	-0.0011	-0.005	0.002	0.0002	0	6.3	-2.622	-1.3006
		6				2.9954	0.9855	-0.7933	0.0209	0.0022	0.0274	0.0097	-0.0145	-0.0471	0.0209	0.0022	-0.0007	6.3	-2.6954	-0.3097
		7				2.1158	0.9237	-1.0275	0.0813	0.0087	0.0291	0.0658	-0.0763	-0.157	0.0813	0.0087	-0.0036	6.3	-2.8158	**0.6342**
NIC Bank Ltd	30	24	13.3	14	0.5	7.5442	0.9985	-2.9927	0.0016	0.001	0.1121	0.0013	-0.0015	-0.0082	0.0016	0.001	-0.0002	28.7	-2.8442	-4.7013
		34				0.5213	0.2934	-2.1224	0.1159	0.073	0.0414	2.3355	-0.7066	2.1057	0.1159	0.073	-0.1177	28.7	-5.8213	2.9645
		28				3.9091	0.9219	-3.5897	0.0492	0.031	0.1187	0.109	-0.0781	-0.1077	0.0492	0.031	-0.0123	28.7	-3.2091	-0.809
		29				3.0935	0.8562	-3.6756	0.0763	0.0481	0.113	0.2291	-0.1438	-0.0693	0.0763	0.0481	-0.0227	28.7	-3.3935	**0.0709**
Pan Africa Ins Co	16.7	4	13.3	109	0.5	13.0144	0.99	-0.8111	0.0021	0.0032	0.0176	0.0572	-0.01	-0.3137	0.0021	0.0032	-0.0011	24	6.9856	-20.0572
		14				6.4787	0.7582	-4.8397	0.0243	0.0369	0.0309	2.8786	-0.2418	-3.0987	0.0243	0.0369	-0.0346	24	3.5213	-12.8786
		24				3.3998	0.5004	-5.7938	0.031	0.0471	0.0248	9.1569	-0.4996	-2.8093	0.031	0.0471	-0.0875	24	-3.3998	-9.1569
		34				1.9159	0.3261	-5.1078	0.028	0.0426	0.0176	17.03	-0.6739	-0.8797	0.028	0.0426	-0.1414	24	-11.9159	-7.03
		44				1.1455	0.2161	-4.0997	0.0228	0.0346	0.0123	25.6167	-0.7839	1.3719	0.0228	0.0346	-0.1935	24	-21.1455	-5.6167
		54				0.7183	0.1466	-3.1856	0.0178	0.0271	0.0087	34.5466	-0.8534	3.5296	0.0178	0.0271	-0.244	24	-30.7183	-4.5466
		64				0.4682	0.1018	-2.4518	0.0138	0.021	0.0062	43.6536	-0.8982	5.507	0.0138	0.021	-0.2933	24	-40.4682	-3.6536
		74				0.3151	0.0722	-1.8874	0.0107	0.0162	0.0045	52.8577	-0.9278	7.3149	0.0107	0.0162	-0.3418	24	-50.3151	-2.8577
		19				4.6494	0.6195	-5.6599	0.0296	0.045	0.0285	5.7279	-0.3805	-3.2971	0.0296	0.045	-0.0604	24	**0.3506**	-10.7279
		20				4.3607	0.5939	-5.7306	0.0301	0.0458	0.0278	6.3749	-0.4061	-3.2435	0.0301	0.0458	-0.0658	24	-0.3607	-10.3749
Standard Chartered Bank Ltd	51.6	44	13.3	15	0.5	10.4579	0.9854	-5.57	0.0067	0.0135	0.202	0.0292	-0.0146	-0.0983	0.0067	0.0135	-0.0039	48.9	-5.5579	-4.9292
		54				2.7377	0.5991	-5.86	0.0706	0.1411	0.1409	1.666	-0.4009	0.8552	0.0706	0.1411	-0.1118	48.9	-7.8377	3.434
		49				6.0943	0.8784	-6.3189	0.0369	0.0737	0.1962	0.344	-0.1216	-0.2255	0.0369	0.0737	-0.0331	48.9	-6.1943	-0.244
		50				5.3153	0.8356	-6.3792	0.0453	0.0904	0.189	0.5008	-0.1644	-0.1614	0.0453	0.0904	-0.0449	48.9	-6.4153	**0.5992**

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JANUARY-JUNE 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.99*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	6.2	3	13.29	42	0.5	3.3943	0.9976	-0.3848	0.0041	0.0003	0.014	0.0014	-0.0024	-0.0117	0.0041	0.0003	-0.0001	5.7	-0.6943	-2.7014
		4				2.4831	0.9677	-0.6006	0.0393	0.0032	0.0176	0.026	-0.0323	-0.1031	0.0393	0.0032	-0.0011	5.7	-0.7831	-1.726
		5				1.6674	0.8636	-0.8926	0.1188	0.0096	0.0184	0.146	-0.1364	-0.2708	0.1188	0.0096	-0.005	5.7	-0.9674	-0.846
		6				1.0284	0.6853	-1.0818	0.1928	0.0156	0.0161	0.4427	-0.3147	-0.3357	0.1928	0.0156	-0.012	5.7	-1.3284	-0.1427
		7				0.5903	0.4855	-1.0557	0.2165	0.0175	0.0121	0.9403	-0.5145	-0.1852	0.2165	0.0175	-0.0207	5.7	-1.8903	**0.3597**
Bamburi Cement Ltd	36	20	13.29	31	0.5	17.2881	0.999	-2.5083	0.0004	0.0008	0.0934	0.0023	-0.001	-0.0212	0.0004	0.0008	-0.0002	26	-11.2881	-6.0023
		30				8.373	0.8933	-4.6126	0.0233	0.0468	0.1189	0.4443	-0.1067	-0.8819	0.0233	0.0468	-0.0214	26	-12.373	3.5557
		25				12.666	0.9811	-3.3752	0.0059	0.0118	0.1133	0.0588	-0.0189	-0.2663	0.0059	0.0118	-0.0037	26	-11.666	-1.0588
		26				11.7666	0.9711	-3.6028	0.0084	0.0168	0.116	0.0951	-0.0289	-0.3696	0.0084	0.0168	-0.0057	26	-11.7666	-0.0951
		27				10.8833	0.9577	-3.8468	0.0114	0.0229	0.118	0.1475	-0.0423	-0.4891	0.0114	0.0229	-0.0083	26	-11.8833	**0.8525**
BAT Ltd	71.2	48	13.29	27	0.5	26.314	0.9939	-6.1411	0.0013	0.0086	0.2223	0.0281	-0.0061	-0.172	0.0013	0.0086	-0.0023	71.5	-2.814	-23.5281
		58				17.3419	0.9354	-8.2614	0.0093	0.0635	0.2463	0.4131	-0.0646	-1.0488	0.0093	0.0635	-0.0251	71.5	-3.8419	-13.9131
		68				9.7732	0.7531	-10.1184	0.0232	0.1589	0.2192	2.2015	-0.2469	-1.6622	0.0232	0.1589	-0.0989	71.5	-6.2732	-5.7015
		78				4.6359	0.4863	-9.4056	0.0293	0.2007	0.15	6.4212	-0.5137	0.2941	0.0293	0.2007	-0.215	71.5	-11.1359	**0.0788**
		77				5.0327	0.5133	-9.6081	0.0293	0.2007	0.1576	5.8824	-0.4867	-0.0328	0.0293	0.2007	-0.2027	71.5	-10.5327	-0.3824
BOC Gases Ltd	36	20	13.29	31	0.5	17.2881	0.999	-2.5083	0.0004	0.0008	0.0934	0.0023	-0.001	-0.0212	0.0004	0.0008	-0.0002	26	-11.2881	-6.0023
		30				8.373	0.8933	-4.6126	0.0233	0.0468	0.1189	0.4443	-0.1067	-0.8819	0.0233	0.0468	-0.0214	26	-12.373	3.5557
		25				12.666	0.9811	-3.3752	0.0059	0.0118	0.1133	0.0588	-0.0189	-0.2663	0.0059	0.0118	-0.0037	26	-11.666	-1.0588
		26				11.7666	0.9711	-3.6028	0.0084	0.0168	0.116	0.0951	-0.0289	-0.3696	0.0084	0.0168	-0.0057	26	-11.7666	-0.0951
		27				10.8833	0.9577	-3.8468	0.0114	0.0229	0.118	0.1475	-0.0423	-0.4891	0.0114	0.0229	-0.0083	26	-11.8833	**0.8525**
Carbacid Investment	76.5	51	13.29	29	0.5	28.8238	0.9919	-6.6018	0.0014	0.012	0.2353	0.045	-0.0081	-0.2596	0.0014	0.012	-0.0033	95.6	15.7762	-44.645
		61				19.8868	0.9371	-8.8235	0.0079	0.0669	0.259	0.4651	-0.0629	-1.2378	0.0079	0.0669	-0.0264	95.6	14.7132	-35.0651
		71				12.1902	0.7854	-10.9437	0.0186	0.1579	0.2394	2.1256	-0.2146	-2.1145	0.0186	0.1579	-0.0927	95.6	12.4098	-26.7256
		81				6.5786	0.5588	-10.9969	0.0252	0.2135	0.1808	5.871	-0.4412	-0.924	0.0252	0.2135	-0.1981	95.6	8.0214	-20.471
		91				3.1522	0.3373	-8.7407	0.0233	0.1976	0.1133	11.8018	-0.6627	2.5757	0.0233	0.1976	-0.3125	95.6	1.4478	-16.4018
		101				1.3648	0.1766	-5.682	0.0165	0.1403	0.0607	19.3715	-0.8234	6.878	0.0165	0.1403	-0.4118	95.6	-6.7648	-13.9715
		92				2.9114	0.3181	-8.4423	0.0227	0.193	0.1071	12.4967	-0.6819	2.9985	0.0227	0.193	-0.3233	95.6	**0.6886**	-16.0967
		93				2.6863	0.2995	-8.138	0.0221	0.1879	0.1011	13.2073	-0.7005	3.4271	0.0221	0.1879	-0.334	95.6	-0.0863	-15.8073
Crown Berger Ltd	8.1	3	13.29	69	0.5	5.3049	0.9922	-0.4482	0.0055	0.0012	0.0137	0.012	-0.0078	-0.0751	0.0055	0.0012	-0.0004	8.5	0.1951	-5.512
		13				0.539	0.2778	-1.5526	0.0848	0.0192	0.0086	4.6032	-0.7222	0.0641	0.0848	0.0192	-0.0523	8.5	-5.039	-0.1032
		23				0.053	0.0393	-0.371	0.0215	0.0049	0.0013	13.4744	-0.9607	2.4892	0.0215	0.0049	-0.1063	8.5	-14.553	1.0256
		4				4.4208	0.9661	-0.75	0.019	0.0043	0.017	0.0637	-0.0339	-0.2525	0.019	0.0043	-0.0017	8.5	**0.0792**	**-4.5637**
		5				3.6138	0.9145	-1.1219	0.0396	0.009	0.019	0.1923	-0.0855	-0.5001	0.0396	0.009	-0.0044	8.5	-0.1138	-3.6923
		14				0.4226	0.2292	-1.3884	0.0767	0.0174	0.0072	5.4225	-0.7708	0.3526	0.0767	0.0174	-0.0583	8.5	-5.9226	**0.0775**
Dunlop Kenya Ltd	20	6	13.29	57	0.5	14.3867	0.9996	-0.7566	0.0002	0.0002	0.028	0.0009	-0.0004	-0.0104	0.0002	0.0002	0	15	-5.3867	-9.0009
		16				5.9832	0.8212	-3.4938	0.0324	0.037	0.0522	0.9545	-0.1788	-1.5041	0.0324	0.037	-0.0227	15	-6.9832	**0.0455**
		15				6.6609	0.86	-3.1951	0.0276	0.0315	0.0527	0.6965	-0.14	-1.3297	0.0276	0.0315	-0.0175	15	-6.6609	-0.6965

E A Cables Ltd	20	6	13.29	68	0.5	14.3921	0.998	-0.8003	0.0007	0.0009	0.0278	0.0064	-0.002	-0.0541	0.0007	0.0009	-0.0002	19.6	-0.7921	-13.6064
		16				6.4053	0.8003	-3.9658	0.0291	0.0396	0.048	1.3766	-0.1997	-1.9761	0.0291	0.0396	-0.0269	19.6	-2.8053	-4.9766
		26				2.3837	0.4337	-4.6193	0.0409	0.0556	0.0314	6.7121	-0.5663	-1.386	0.0409	0.0556	-0.0902	19.6	-8.7837	-0.3121
		36				0.867	0.1994	-3.1021	0.0291	0.0395	0.0156	14.5525	-0.8006	1.3748	0.0291	0.0395	-0.1528	19.6	-17.267	1.8475
		27				2.1535	0.403	-4.5076	0.0403	0.0547	0.0295	7.4177	-0.597	-1.15	0.0403	0.0547	-0.0968	19.6	-9.5535	-0.0177
		28				1.9454	0.374	-4.3793	0.0394	0.0536	0.0277	8.1453	-0.626	-0.8974	0.0394	0.0536	-0.1033	19.6	-10.3454	**0.2547**
E A Packaging Ltd	15.5	5	13.29	51	0.5	10.8218	0.9998	-0.6261	0.0002	0.0001	0.0234	0.0004	-0.0002	-0.0043	0.0002	0.0001	0	14	-1.8218	-9.0004
		15				2.9239	0.6756	-3.0134	0.0643	0.0394	0.0377	1.4596	-0.3244	-1.148	0.0643	0.0394	-0.0324	14	-3.9239	-0.4596
		22				0.785	0.2721	-2.3115	0.0594	0.0364	0.0172	5.8706	-0.7279	0.4244	0.0594	0.0364	-0.0858	14	-8.785	2.1294
		16				2.4544	0.6089	-3.0745	0.0687	0.0421	0.0349	1.9258	-0.3911	-1.0848	0.0687	0.0421	-0.0399	14	-4.4544	**0.0742**
EA Portland Cement	17.6	2	13.29	107	0.5	15.7304	0.9996	-0.2675	0.0001	0.0002	0.0093	0.0018	-0.0004	-0.0188	0.0001	0.0002	0	14.5	-3.2304	-12.5018
		12				8.115	0.8346	-4.1849	0.0187	0.0309	0.0329	1.7436	-0.1654	-2.6926	0.0187	0.0309	-0.0233	14.5	-5.615	-4.2436
		22				4.25	0.568	-5.9988	0.0295	0.0489	0.0287	7.2356	-0.432	-3.263	0.0295	0.0489	-0.0742	14.5	-11.75	**0.2644**
		21				4.5209	0.592	-5.9544	0.0292	0.0483	0.0295	6.5708	-0.408	-3.3429	0.0292	0.0483	-0.0688	14.5	-11.0209	-0.0708
Firestone EA Ltd	16.1	12	13.29	24	0.5	4.8853	0.9864	-1.5565	0.0127	0.004	0.055	0.0138	-0.0136	-0.0642	0.0127	0.004	-0.0012	16.5	-0.3853	-4.5138
		22				0.1015	0.0864	-0.6017	0.0576	0.0179	0.0064	4.5871	-0.9136	2.1342	0.0576	0.0179	-0.0965	16.5	-5.6015	0.9129
		17				1.1814	0.5619	-2.1222	0.1442	0.0449	0.0393	0.9884	-0.4381	-0.0082	0.1442	0.0449	-0.0402	16.5	-1.6814	-0.4884
		18				0.7814	0.4282	-1.8847	0.1436	0.0447	0.0306	1.5242	-0.5718	0.3537	0.1436	0.0447	-0.0536	16.5	-2.2814	-0.0242
		19				0.4958	0.3087	-1.5568	0.1289	0.0401	0.0224	2.1742	-0.6913	0.8059	0.1289	0.0401	-0.0665	16.5	-2.9958	**0.3258**
EABL	68.8	54	13.29	20	0.5	18.3144	0.9879	-6.9052	0.0032	0.0153	0.2483	0.0427	-0.0121	-0.19	0.0032	0.0153	-0.0044	77.1	4.7856	-23.1427
		64				9.697	0.8536	-8.7482	0.0236	0.1116	0.2452	0.7825	-0.1464	-0.7894	0.0236	0.1116	-0.0543	77.1	3.403	-13.8825
		74				3.6736	0.5101	-8.0565	0.041	0.194	0.1571	4.1161	-0.4899	1.1459	0.041	0.194	-0.1891	77.1	-0.5736	-7.2161
		84				0.9657	0.1919	-4.2829	0.0281	0.1328	0.0612	10.7653	-0.8081	6.163	0.0281	0.1328	-0.3318	77.1	-7.8657	-3.8653
		94				0.1834	0.0478	-1.3816	0.0102	0.0484	0.0155	19.3401	-0.9522	10.3079	0.0102	0.0484	-0.4242	77.1	-17.0834	-2.4401
		72				4.5947	0.5867	-8.5436	0.04	0.1895	0.1789	3.1658	-0.4133	0.41	0.04	0.1895	-0.158	77.1	**0.5053**	-8.2658
		73				4.1161	0.5484	-8.3202	0.0407	0.1927	0.1681	3.6229	-0.4516	0.7578	0.0407	0.1927	-0.1735	77.1	-0.0161	-7.7229
Kenya National Mills	17	4	13.29	77	0.5	13.2606	0.9989	-0.5295	0.0004	0.0005	0.0186	0.0034	-0.0011	-0.032	0.0004	0.0005	-0.0001	14	-3.2606	-10.0034
		14				5.5308	0.7736	-3.7983	0.0325	0.0362	0.0381	1.6307	-0.2264	-2.0574	0.0325	0.0362	-0.0274	14	-5.5308	-1.6307
		24				2.0285	0.4055	-4.2352	0.0419	0.0466	0.0243	7.4856	-0.5945	-1.2507	0.0419	0.0466	-0.088	14	-12.0285	2.5144
		17				4.1023	0.6533	-4.3473	0.0399	0.0444	0.035	3.0094	-0.3467	-2.2333	0.0399	0.0444	-0.0445	14	-7.1023	-0.0094
		18				3.7098	0.6138	-4.4351	0.0413	0.046	0.0336	3.5525	-0.3862	-2.1967	0.0413	0.046	-0.0506	14	-7.7098	**0.4475**
		19				3.3541	0.5753	-4.4807	0.0423	0.0471	0.0321	4.1326	-0.4247	-2.1179	0.0423	0.0471	-0.0568	14	-8.3541	0.8674
Kenya Oil Co Ltd	55	33	13.29	42	0.5	24.2412	0.9818	-4.6849	0.0027	0.0174	0.1488	0.1196	-0.0182	-0.5812	0.0027	0.0174	-0.0056	76	18.7588	-43.1196
		43				15.8092	0.8851	-7.5368	0.0119	0.0754	0.1644	1.0447	-0.1149	-2.1895	0.0119	0.0754	-0.0368	76	17.1908	-34.0447
		53				9.245	0.6904	-9.5772	0.0216	0.1371	0.1436	3.8376	-0.3096	-2.9863	0.0216	0.1371	-0.1043	76	13.755	-26.8376
		63				4.9319	0.4661	-9.2445	0.0243	0.1546	0.1035	8.8816	-0.5339	-1.4101	0.0243	0.1546	-0.1912	76	8.0681	-21.8816
		73				2.4575	0.2806	-7.2284	0.0206	0.131	0.0649	15.7643	-0.7194	1.8496	0.0206	0.131	-0.2767	76	**0.5425**	-18.7643
		83				1.1683	0.1554	-4.8805	0.0146	0.0928	0.0369	23.8322	-0.8446	5.4411	0.0146	0.0928	-0.3514	76	-8.1683	-16.8322
		74				2.2855	0.2654	-6.9898	0.0201	0.1275	0.0615	16.528	-0.7346	2.2126	0.0201	0.1275	-0.2847	76	-0.2855	-18.528
KPLC	124.9	78	13.29	25	0.5	51.9202	0.9991	-9.7506	0.0001	0.0026	0.3643	0.0056	-0.0009	-0.0508	0.0001	0.0026	-0.0006	111.3	-18.6202	-33.3056

		88				42.6129	0.9928	-11.259	0.0009	0.0177	0.4069	0.0553	-0.0072	-0.3157	0.0009	0.0177	-0.0048	111.3	-19.3129	-23.3553
		98				33.5071	0.9668	-13.2275	0.0033	0.0653	0.4363	0.3066	-0.0332	-1.0407	0.0033	0.0653	-0.0222	111.3	-20.2071	-13.6066
		108				24.9585	0.9009	-15.4866	0.0079	0.154	0.4378	1.1152	-0.0991	-2.0562	0.0079	0.154	-0.0675	111.3	-21.6585	-4.4152
		118				17.459	0.784	-17.1623	0.0133	0.2588	0.4023	2.9728	-0.216	-2.4883	0.0133	0.2588	-0.1498	111.3	-24.159	3.7272
		113				21.0471	0.8487	-16.4685	0.0106	0.2071	0.4247	1.8823	-0.1513	-2.4163	0.0106	0.2071	-0.1039	111.3	-22.7471	-0.1823
		114				20.3019	0.8367	-16.6348	0.0112	0.2178	0.421	2.0728	-0.1633	-2.4582	0.0112	0.2178	-0.1124	111.3	-23.0019	**0.6272**
Total Kenya Ltd	49	35	13.29	25	0.5	16.2776	0.991	-4.5	0.0028	0.0084	0.1614	0.0275	-0.009	-0.1476	0.0028	0.0084	-0.0023	47	-4.2776	-12.0275
		45				7.762	0.8279	-6.569	0.0294	0.0884	0.164	0.869	-0.1721	-0.973	0.0294	0.0884	-0.0465	47	-5.762	-2.869
		55				2.4409	0.425	-5.8375	0.0452	0.1358	0.0919	4.905	-0.575	1.002	0.0452	0.1358	-0.1654	47	-10.4409	3.095
		48				5.7422	0.7194	-6.8405	0.0389	0.1168	0.1475	1.6562	-0.2806	-0.8714	0.0389	0.1168	-0.077	47	-6.7422	-0.6562
		49				5.1479	0.6788	-6.8387	0.0414	0.1241	0.1406	1.9977	-0.3212	-0.7453	0.0414	0.1241	-0.0887	47	-7.1479	**0.0023**
		50				4.5949	0.6368	-6.7868	0.0433	0.13	0.133	2.3804	-0.3632	-0.569	0.0433	0.13	-0.1009	47	-7.5949	0.6196
Unga Group Ltd	47	7	13.29	103	0.5	40.4626	0.9989	-0.9848	0.0001	0.0012	0.0324	0.0126	-0.0011	-0.1143	0.0001	0.0012	-0.0003	31.1	-16.3626	-24.1126
		17				31.6654	0.968	-4.2971	0.0021	0.0239	0.0691	0.5725	-0.032	-2.183	0.0021	0.0239	-0.0104	31.1	-17.5654	-14.6725
		27				24.377	0.8881	-8.8238	0.0056	0.0633	0.0868	2.6412	-0.1119	-5.4662	0.0056	0.0633	-0.0395	31.1	-20.277	-6.7412
		37				18.7443	0.7834	-12.4465	0.0086	0.0975	0.0904	6.3655	-0.2166	-7.8453	0.0086	0.0975	-0.0827	31.1	-24.6443	-0.4655
		47				14.4931	0.6756	-14.6049	0.0105	0.1195	0.0863	11.4714	-0.3244	-8.7602	0.0105	0.1195	-0.1336	31.1	-30.3931	4.4286
		38				18.2626	0.7725	-12.7279	0.0088	0.1003	0.0902	6.8195	-0.2275	-8.0024	0.0088	0.1003	-0.0875	31.1	-25.1626	**0.0805**

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JULY-DECEMBER 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31/12/99*	*Value of European call option*	*Value of European put option*
Brooke Bond	146.9	72	13.29	39	0.5	79.5478	0.9985	-9.121	0.0001	0.0051	0.3356	0.0189	-0.0015	-0.1674	0.0001	0.0051	-0.0012	104	-47.5478	-32.0189
		82				70.2622	0.9937	-10.7841	0.0004	0.0185	0.3785	0.0904	-0.0063	-0.5869	0.0004	0.0185	-0.0051	104	-48.2622	-22.0904
		92				61.1229	0.981	-12.9039	0.0011	0.0481	0.415	0.3082	-0.019	-1.4632	0.0011	0.0481	-0.0155	104	-49.1229	-12.3082
		102				52.2782	0.9556	-15.5078	0.0023	0.0974	0.4405	0.8206	-0.0444	-2.8235	0.0023	0.0974	-0.0367	104	-50.2782	-2.8206
		112				43.9137	0.9135	-18.386	0.0039	0.1638	0.4514	1.8131	-0.0865	-4.4582	0.0039	0.1638	-0.0726	104	-51.9137	6.1869
		105				49.7096	0.9448	-16.3579	0.0028	0.1159	0.4454	1.0591	-0.0552	-3.3006	0.0028	0.1159	-0.0458	104	-50.7096	-0.0591
		106				48.8639	0.9409	-16.6455	0.0029	0.1223	0.4467	1.1491	-0.0591	-3.4637	0.0029	0.1223	-0.0492	104	-50.8639	**0.8509**
		107				48.0238	0.9368	-16.9344	0.0031	0.1289	0.4479	1.2447	-0.0632	-3.6284	0.0031	0.1289	-0.0527	104	-51.0238	1.7553
Eaagads Ltd	42.1	14	13.29	60	0.5	29.0088	0.9985	-1.8195	0.0003	0.0015	0.0651	0.0087	-0.0015	-0.0785	0.0003	0.0015	-0.0004	26	-17.0088	-12.0087
		24				20.0355	0.9548	-4.3783	0.0053	0.0283	0.1008	0.3925	-0.0452	-1.3938	0.0053	0.0283	-0.0115	26	-18.0355	-2.3925
		34				12.628	0.8085	-7.7157	0.0153	0.0812	0.1071	2.3422	-0.1915	-3.4876	0.0153	0.0812	-0.052	26	-20.628	5.6578
		26				18.3899	0.9338	-5.0777	0.0072	0.0383	0.1046	0.6183	-0.0662	-1.8445	0.0072	0.0383	-0.017	26	-18.3899	-0.6183
		27				17.5947	0.9216	-5.4336	0.0082	0.0436	0.106	0.7589	-0.0784	-2.076	0.0082	0.0436	-0.0203	26	-18.5947	**0.2411**
		28				16.8195	0.9082	-5.7887	0.0092	0.049	0.1071	0.9194	-0.0918	-2.3068	0.0092	0.049	-0.0239	26	-18.8195	1.0806
		29				16.0652	0.8939	-6.1394	0.0103	0.0546	0.1078	1.1008	-0.1061	-2.5331	0.0103	0.0546	-0.0278	26	-19.0652	1.8992
George Williamson	143	87	13.29	22	0.5	61.5938	0.9999	-10.8263	0	0.0004	0.407	0.0006	-0.0001	-0.0073	0	0.0004	-0.0001	92	-56.5938	-5.0006
		97				52.245	0.9986	-12.1343	0.0002	0.0045	0.4528	0.0089	-0.0014	-0.0718	0.0002	0.0045	-0.001	92	-57.245	4.9911
		92				56.9172	0.9996	-11.466	0.0001	0.0015	0.4301	0.0025	-0.0004	-0.0252	0.0001	0.0015	-0.0003	92	-56.9172	-0.0025
		93				55.9823	0.9995	-11.5967	0.0001	0.0019	0.4347	0.0033	-0.0005	-0.0316	0.0001	0.0019	-0.0004	92	-56.9823	**0.9967**
Kakuzi Ltd	120.4	68	13.29	27	0.5	56.7736	0.9997	-8.4763	0	0.0009	0.318	0.0018	-0.0003	-0.0201	0	0.0009	-0.0002	87	-37.7736	-19.0018
		78				47.439	0.9967	-9.8724	0.0004	0.0085	0.3628	0.0243	-0.0033	-0.1727	0.0004	0.0085	-0.0021	87	-38.439	-9.0243
		88				38.2227	0.9815	-11.6674	0.002	0.0386	0.3997	0.1652	-0.0185	-0.724	0.002	0.0386	-0.012	87	-39.2227	**0.8348**
		87				39.133	0.984	-11.4632	0.0017	0.034	0.3967	0.1398	-0.016	-0.6443	0.0017	0.034	-0.0103	87	-39.133	-0.1398
Kapchorua Tea Co	150	137	13.29	24	0.5	24.0567	0.8439	-19.7202	0.0094	0.2539	0.5126	2.2489	-0.1561	-2.6835	0.0094	0.2539	-0.1283	150	-11.0567	-15.2489
		147				17.1842	0.7242	-20.6593	0.0131	0.3544	0.4573	4.7336	-0.2758	-2.379	0.0131	0.3544	-0.2305	150	-14.1842	-7.7336
		157				11.6608	0.5822	-19.9962	0.0153	0.4141	0.3784	8.5673	-0.4178	-0.4724	0.0153	0.4141	-0.3561	150	-18.6608	-1.5673
		167				7.5219	0.4379	-17.7629	0.0155	0.418	0.2908	13.7854	-0.5621	3.0045	0.0155	0.418	-0.4905	150	-24.5219	3.2146
		159				10.7247	0.5529	-19.6632	0.0155	0.4194	0.3611	9.5025	-0.4471	0.1094	0.0155	0.4194	-0.3828	150	-19.7247	-0.5025
		160				10.2774	0.5383	-19.4735	0.0156	0.4212	0.3523	9.991	-0.4617	0.4235	0.0156	0.4212	-0.3962	150	-20.2774	**0.009**
		161				9.8439	0.5237	-19.2689	0.0156	0.4224	0.3435	10.4931	-0.4763	0.7524	0.0156	0.4224	-0.4097	150	-20.8439	0.5069
		162				9.4238	0.5091	-19.0501	0.0157	0.423	0.3347	11.0088	-0.4909	1.0956	0.0157	0.423	-0.4232	150	-21.4238	0.9912
Limuru Tea Co	650	503	13.29	16	0.5	179.3777	0.9982	-62.8148	0.0001	0.0266	2.3472	0.0397	-0.0018	-0.2638	0.0001	0.0266	-0.0061	650	-32.3777	-147.0397
		513				170.0524	0.9969	-64.2113	0.0001	0.0434	2.3896	0.0715	-0.0031	-0.4168	0.0001	0.0434	-0.0105	650	-33.0524	-137.0715
		523				160.7481	0.9948	-65.6687	0.0002	0.0683	2.4295	0.1242	-0.0052	-0.6306	0.0002	0.0683	-0.0174	650	-33.7481	-127.1242
		533				151.4752	0.9918	-67.1967	0.0003	0.1034	2.4658	0.2085	-0.0082	-0.9151	0.0003	0.1034	-0.0278	650	-34.4752	-117.2085
		543				142.2482	0.9872	-68.7997	0.0004	0.1513	2.4973	0.3386	-0.0128	-1.2745	0.0004	0.1513	-0.0431	650	-35.2482	-107.3386
		553				133.0858	0.9809	-70.473	0.0006	0.2141	2.5224	0.5333	-0.0191	-1.7042	0.0006	0.2141	-0.0648	650	-36.0858	-97.5333
		563				124.0113	0.9722	-72.1998	0.0009	0.2936	2.5396	0.8159	-0.0278	-2.1875	0.0009	0.2936	-0.0945	650	-37.0113	-87.8159
		573				115.053	0.9607	-73.9482	0.0012	0.3908	2.5469	1.2147	-0.0393	-2.6923	0.0012	0.3908	-0.1339	650	-38.053	-78.2147
		583				106.2438	0.9458	-75.6695	0.0015	0.5054	2.5426	1.7625	-0.0542	-3.17	0.0015	0.5054	-0.185	650	-39.2438	-68.7625
		593				97.6207	0.9272	-77.2984	0.0019	0.6361	2.5252	2.4966	-0.0728	-3.5554	0.0019	0.6361	-0.2491	650	-40.6207	-59.4966
		603				89.2239	0.9044	-78.7555	0.0023	0.7802	2.4933	3.4568	-0.0956	-3.7689	0.0023	0.7802	-0.3278	650	-42.2239	-50.4568
		613				81.0954	0.8774	-79.9508	0.0028	0.9336	2.446	4.6854	-0.1226	-3.7207	0.0028	0.9336	-0.422	650	-44.0954	-41.6854

		623				73.2772	0.8459	-80.7904	0.0032	1.0911	2.3827	6.2243	-0.1541	-3.3167	0.0032	1.0911	-0.532	650	-46.2772	-33.2243
		633				65.8102	0.8101	-81.1832	0.0037	1.247	2.3037	8.1144	-0.1899	-2.4659	0.0037	1.247	-0.6578	650	-48.8102	-25.1144
		643				58.7318	0.7702	-81.0485	0.0041	1.3948	2.2096	10.3931	-0.2298	-1.0877	0.0041	1.3948	-0.7987	650	-51.7318	-17.3931
		653				52.0746	0.7268	-80.323	0.0045	1.5286	2.1018	13.093	-0.2732	0.8814	0.0045	1.5286	-0.9533	650	-55.0746	-10.093
		663				45.8649	0.6804	-78.9666	0.0049	1.6427	1.982	16.2404	-0.3196	3.4813	0.0049	1.6427	-1.1198	650	-58.8649	-3.2404
		673				40.1215	0.6318	-76.9662	0.0051	1.7327	1.8527	19.8541	-0.3682	6.7253	0.0051	1.7327	-1.296	650	-63.1215	3.1459
		667				43.5107	0.6612	-78.2435	0.005	1.6818	1.9313	17.6291	-0.3388	4.7018	0.005	1.6818	-1.1893	650	-60.5107	-0.6291
		668				42.934	0.6563	-78.0466	0.005	1.691	1.9184	17.988	-0.3437	5.0231	0.005	1.691	-1.2069	650	-60.934	**0.012**
Rea Vipingo Ltd	6	4	13.29	20	0.5	2.2572	0.9997	-0.4982	0.0014	0.0001	0.0187	0.0001	-0.0003	-0.0007	0.0014	0.0001	0	4.8	-1.4572	-0.8001
		5				1.3333	0.9664	-0.6568	0.0881	0.0032	0.0223	0.0118	-0.0336	-0.0351	0.0881	0.0032	-0.0011	4.8	-1.5333	**0.1882**
Sasini Tea & Coffe	54	31	13.29	27	0.5	24.9941	0.9996	-3.867	0.0001	0.0006	0.1449	0.0011	-0.0004	-0.012	0.0001	0.0006	-0.0001	44.9	-11.0941	-13.9011
		41				15.7625	0.9704	-5.5636	0.0065	0.0257	0.1832	0.1266	-0.0296	-0.465	0.0065	0.0257	-0.0086	44.9	-11.8625	-4.0266
		51				7.7872	0.7712	-7.621	0.0294	0.1156	0.1693	1.5084	-0.2288	-1.2788	0.0294	0.1156	-0.0693	44.9	-13.8872	4.5916
		45				12.3036	0.919	-6.5072	0.0146	0.0573	0.1866	0.4105	-0.081	-0.9112	0.0146	0.0573	-0.0239	44.9	-12.4036	-0.3105
		46				11.4851	0.9003	-6.74	0.017	0.0669	0.1857	0.5277	-0.0997	-1.0196	0.017	0.0669	-0.0296	44.9	-12.5851	**0.5723**

SIMULATION OF OPTION VALUES USING BOPSCOL
C0MMERCIAL AND SERVICES SECTOR-JULY-DECEMBER 1999

Company	Stock price	Exercise price	Rf	V	t	Call price	Call delta	Call theta	Call gamma	Call vega	Call rho	Put price	Put delta	Put theta	Put gamma	Put vega	Put rho	Stock price at expiratior 31.12.99	Value of European call option	Value of European put option
A Baumann & Co	16.9	14	13.29	12	0.5	3.8005	0.9988	-1.7439	0.0027	0.0005	0.0654	0.0005	-0.0012	-0.0029	0.0027	0.0005	-0.0001	14.9	-2.9005	-0.9005
		15				2.8709	0.9872	-1.8831	0.0231	0.004	0.0691	0.0066	-0.0128	-0.0178	0.0231	0.004	-0.0011	14.9	-2.9709	**0.0934**
CMC Holdings Ltd	28	22	13.29	16	0.5	7.4171	0.9972	-2.7521	0.0027	0.0017	0.1025	0.0027	-0.0028	-0.0162	0.0027	0.0017	-0.0004	30	0.5829	-8.0027
		32				0.5585	0.2959	-2.1212	0.1091	0.0684	0.0386	2.5012	-0.7041	1.8582	0.1091	0.0684	-0.1111	30	-2.5585	-0.5012
		26				3.8232	0.903	-3.3958	0.0542	0.034	0.1073	0.1516	-0.097	-0.1626	0.0542	0.034	-0.0143	30	**0.1768**	-4.1516
		27				3.0329	0.8328	-3.4891	0.079	0.0496	0.1014	0.2971	-0.1672	-0.1315	0.079	0.0496	-0.0249	30	-0.0329	-3.2971
Car & General	10	2	13.29	105	0.5	8.1412	0.9957	-0.335	0.0017	0.0009	0.0091	0.0126	-0.0043	-0.0862	0.0017	0.0009	-0.0003	9	-1.1412	-7.0126
		12				2.4946	0.5852	-3.3404	0.0525	0.0276	0.0168	3.7231	-0.4148	-1.8481	0.0525	0.0276	-0.0394	9	-5.4946	-0.7231
		22				0.8955	0.2738	-2.7172	0.0448	0.0235	0.0092	11.4811	-0.7262	0.0186	0.0448	0.0235	-0.0937	9	-13.8955	1.5189
		14				2.0015	0.503	-3.3644	0.0537	0.0282	0.0151	5.1014	-0.497	-1.6234	0.0537	0.0282	-0.0504	9	-7.0015	-0.1014
		15				1.7982	0.466	-3.3315	0.0535	0.0281	0.0143	5.8339	-0.534	-1.4662	0.0535	0.0281	-0.0559	9	-7.7982	**0.1661**
		16				1.6188	0.4316	-3.2768	0.0529	0.0278	0.0135	6.5901	-0.5684	-1.2871	0.0529	0.0278	-0.0614	9	-8.6188	0.4099
		17				1.4601	0.3998	-3.2052	0.052	0.0273	0.0127	7.3672	-0.6002	-1.0912	0.052	0.0273	-0.0668	9	-9.4601	0.6328
Express Kenya Ltd	25.5	9	13.29	49	0.5	17.0795	0.9996	-1.1298	0.0002	0.0002	0.0421	0.0009	-0.0004	-0.0106	0.0002	0.0002	-0.0001	18.9	-7.1795	-9.9009
		19				8.2842	0.8877	-3.5938	0.0216	0.0344	0.0718	0.5627	-0.1123	-1.231	0.0216	0.0344	-0.0171	18.9	-8.3842	-0.4627
		29				2.8594	0.4975	-4.8308	0.0452	0.0719	0.0491	4.495	-0.5025	-1.2245	0.0452	0.0719	-0.0865	18.9	-12.9594	5.605
		20				7.5488	0.8568	-3.8971	0.0256	0.0407	0.0715	0.763	-0.1432	-1.41	0.0256	0.0407	-0.0221	18.9	-8.6488	**0.337**
Kenya Airways	8	4	13.29	39	0.5	4.2585	0.9981	-0.5086	0.0028	0.0003	0.0186	0.0013	-0.0019	-0.0112	0.0028	0.0003	-0.0001	7.8	-0.4585	-3.8013
		5				3.3379	0.9814	-0.7003	0.0207	0.0026	0.0226	0.0164	-0.0186	-0.0785	0.0207	0.0026	-0.0008	7.8	-0.5379	-2.8164
		6				2.4722	0.9225	-0.9725	0.0658	0.0082	0.0245	0.0865	-0.0775	-0.2263	0.0658	0.0082	-0.0035	7.8	-0.6722	-1.8865
		7				1.7218	0.8059	-1.2345	0.1246	0.0156	0.0236	0.2718	-0.1941	-0.364	0.1246	0.0156	-0.0091	7.8	-0.9218	-1.0718
		8				1.1307	0.6476	-1.3574	0.1683	0.021	0.0203	0.6164	-0.3524	-0.3626	0.1683	0.021	-0.0172	7.8	-1.3307	-0.4164
		9				0.7052	0.4808	-1.2965	0.1806	0.0225	0.0157	1.1266	-0.5192	-0.1773	0.1806	0.0225	-0.0264	7.8	-1.9052	**0.0734**
Lonhro Motors	17	8	13.29	38	0.5	9.5153	0.9993	-1.0045	0.0005	0.0003	0.0374	0.001	-0.0007	-0.0096	0.0005	0.0003	-0.0001	13.3	-4.2153	-5.301
		18				1.8881	0.5671	-2.8268	0.0861	0.0473	0.0388	1.7309	-0.4329	-0.5884	0.0861	0.0473	-0.0455	13.3	-6.5881	2.9691
		13				5.0318	0.9162	-2.1045	0.0337	0.0185	0.0527	0.196	-0.0838	-0.4878	0.0337	0.0185	-0.0081	13.3	-4.7318	-0.496
		14				4.2518	0.8653	-2.3803	0.0475	0.0261	0.0523	0.3517	-0.1347	-0.6393	0.0475	0.0261	-0.0132	13.3	-4.9518	**0.3483**
Marshalls EA Ltd	22	16	13.29	19	0.5	7.0301	0.9983	-2.0006	0.0018	0.0008	0.0747	0.0015	-0.0017	-0.0109	0.0018	0.0008	-0.0002	23.6	0.5699	-7.6015
		26				0.408	0.2477	-1.6048	0.107	0.0492	0.0252	2.7364	-0.7523	1.6284	0.107	0.0492	-0.0964	23.6	-2.808	-0.3364
		20				3.4373	0.8982	-2.6949	0.0602	0.0277	0.0816	0.1515	-0.1018	-0.2078	0.0602	0.0277	-0.012	23.6	**0.1627**	-3.7515
		21				2.6619	0.8181	-2.8189	0.0894	0.0411	0.0767	0.3118	-0.1819	-0.2074	0.0894	0.0411	-0.0216	23.6	-0.0619	-2.9118
Nation Media Grou	130	83	13.29	22	0.5	52.338	0.9996	-10.3411	0.0001	0.0012	0.3881	0.0019	-0.0004	-0.0195	0.0001	0.0012	-0.0002	100.4	-34.938	-17.4019
		93				43.0047	0.9961	-11.7296	0.0006	0.0107	0.4324	0.0257	-0.0039	-0.1645	0.0006	0.0107	-0.0027	100.4	-35.6047	-7.4257
		103				33.8024	0.9773	-13.4816	0.0027	0.0495	0.4663	0.1805	-0.0227	-0.673	0.0027	0.0495	-0.0156	100.4	-36.4024	2.4195

		98				38.3735	0.9899	-12.5474	0.0013	0.0248	0.4515	0.0731	-0.0101	-0.3605	0.0013	0.0248	-0.007	100.4	-35.9735	-2.4731
		99				37.4532	0.988	-12.7247	0.0015	0.0288	0.4549	0.0885	-0.012	-0.4135	0.0015	0.0288	-0.0083	100.4	-36.0532	-1.4885
		100				36.5356	0.9858	-12.9069	0.0018	0.0332	0.4581	0.1066	-0.0142	-0.4713	0.0018	0.0332	-0.0098	100.4	-36.1356	-0.5066
		101				35.621	0.9833	-13.0939	0.0021	0.0381	0.461	0.1277	-0.0167	-0.5339	0.0021	0.0381	-0.0115	100.4	-36.221	**0.4723**
Pearl Drycleaners	10	1	13.29	120	0.5	9.0662	0.9994	-0.1424	0.0003	0.0002	0.0046	0.0019	-0.0006	-0.0181	0.0003	0.0002	0	3	-7.0662	-2.0019
		11				3.1898	0.6518	-3.5793	0.0436	0.0261	0.0166	3.4826	-0.3482	-2.2114	0.0436	0.0261	-0.0348	3	-11.1898	4.5174
		3				7.3171	0.9727	-0.8546	0.0074	0.0045	0.012	0.1243	-0.0273	-0.4815	0.0074	0.0045	-0.002	3	-7.3171	-0.1243
		4				6.5559	0.9432	-1.3501	0.0134	0.0081	0.0144	0.2987	-0.0568	-0.8527	0.0134	0.0081	-0.0043	3	-7.5559	**0.7013**
		5				5.8781	0.9065	-1.841	0.0197	0.0118	0.0159	0.5567	-0.0935	-1.2193	0.0197	0.0118	-0.0075	3	-7.8781	1.4433
		6				5.2789	0.8653	-2.2877	0.0255	0.0153	0.0169	0.8931	-0.1347	-1.5415	0.0255	0.0153	-0.0112	3	-8.2789	2.1069
Standard Newspap	14	2	13.29	112	0.5	12.1353	0.9983	-0.304	0.0005	0.0005	0.0092	0.0067	-0.0017	-0.0553	0.0005	0.0005	-0.0001	9.9	-4.2353	-7.8983
		12				5.4107	0.75	-4.1996	0.0287	0.0315	0.0254	2.6393	-0.25	-2.7073	0.0287	0.0315	-0.0307	9.9	-7.5107	-0.5393
		22				2.6094	0.4638	-4.9212	0.0358	0.0393	0.0194	9.195	-0.5362	-2.1854	0.0358	0.0393	-0.0835	9.9	-14.7094	2.905
		13				5.0055	0.7168	-4.4211	0.0305	0.0335	0.0252	3.1697	-0.2832	-2.8045	0.0305	0.0335	-0.0357	9.9	-8.1055	-0.0697
		14				4.6357	0.6843	-4.5994	0.0321	0.0352	0.0247	3.7357	-0.3157	-2.8584	0.0321	0.0352	-0.0408	9.9	-8.7357	**0.3643**
TPS Serena	16.1	12	13.29	16	0.5	4.8718	0.9994	-1.4948	0.0011	0.0002	0.0561	0.0003	-0.0006	-0.0025	0.0011	0.0002	0	16.1	-0.7718	-4.1003
		13				3.9392	0.9944	-1.6334	0.0088	0.0018	0.0604	0.0034	-0.0056	-0.0168	0.0088	0.0018	-0.0005	16.1	-0.8392	-3.1034
		14				3.0222	0.9699	-1.7979	0.0375	0.0078	0.063	0.0221	-0.0301	-0.0569	0.0375	0.0078	-0.0025	16.1	-0.9222	-2.1221
		15				2.1572	0.8979	-1.9591	0.0978	0.0203	0.0615	0.0928	-0.1021	-0.0938	0.0978	0.0203	-0.0087	16.1	-1.0572	-1.1928
		16				1.4048	0.7577	-2.0038	0.1715	0.0356	0.054	0.2761	-0.2423	-0.0141	0.1715	0.0356	-0.0209	16.1	-1.3048	-0.3761
		17				0.8225	0.5648	-1.8162	0.2161	0.0448	0.0414	0.6296	-0.4352	0.2978	0.2161	0.0448	-0.0382	16.1	-1.7225	**0.2704**
Uchumi Supermark	48.2	33	13.29	27	0.5	17.346	0.9924	-4.2445	0.0023	0.0071	0.1524	0.0244	-0.0076	-0.1408	0.0023	0.0071	-0.002	39.3	-11.046	-6.3244
		43				8.7378	0.8512	-6.4256	0.0252	0.0791	0.1614	0.7733	-0.1488	-1.0783	0.0252	0.0791	-0.0397	39.3	-12.4378	2.9267
		38				12.829	0.9544	-5.2905	0.0104	0.0327	0.1659	0.1859	-0.0456	-0.5649	0.0104	0.0327	-0.0119	39.3	-11.529	-1.4859
		39				11.9649	0.9398	-5.5293	0.013	0.0407	0.1667	0.2576	-0.0602	-0.6794	0.013	0.0407	-0.0158	39.3	-11.6649	-0.5576
		40				11.1207	0.9222	-5.7687	0.0158	0.0496	0.1667	0.349	-0.0778	-0.7945	0.0158	0.0496	-0.0205	39.3	-11.8207	**0.351**

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JULY-DECEMBER 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31/12/99*	*Value of European call option*	*Value of European put option*
Barclays Bank	109.6	79	13.3	20	0.5	35.6891	0.9979	-9.8963	0.0004	0.0052	0.3684	0.0102	-0.0021	-0.0722	0.0004	0.0052	-0.0012	103.1	-11.5891	-24.1102
		89				26.4554	0.9779	-11.5441	0.0034	0.0408	0.4036	0.1335	-0.0221	-0.4765	0.0034	0.0408	-0.0128	103.1	-12.3554	-14.2335
		99				17.7808	0.8961	-13.4862	0.0116	0.1398	0.4022	0.8161	-0.1039	-1.175	0.0116	0.1398	-0.061	103.1	-13.6808	-4.9161
		109				10.5215	0.7188	-14.3002	0.0218	0.2614	0.3413	2.9139	-0.2812	-0.7455	0.0218	0.2614	-0.1686	103.1	-16.4215	2.9861
		104				13.9168	0.819	-14.1612	0.017	0.2041	0.3792	1.6307	-0.181	-1.2282	0.017	0.2041	-0.1074	103.1	-14.8168	-0.7307
		105				13.1972	0.8006	-14.239	0.018	0.2166	0.3727	1.8467	-0.1994	-1.1817	0.018	0.2166	-0.1185	103.1	-15.0972	**0.0533**
City Trust Ltd	22.5	16	13.3	14	0.5	7.5287	1	-1.9898	0	0	0.0749	0	0	-0.0001	0	0	0	22.1	-1.4287	-6.1
		25				0.5285	0.3656	-1.8606	0.1688	0.0598	0.0385	1.4212	-0.6344	1.2483	0.1688	0.0598	-0.0785	22.1	-3.4285	1.4788
		21				2.9319	0.9219	-2.6922	0.0656	0.0232	0.089	0.0818	-0.0781	-0.0808	0.0656	0.0232	-0.0092	22.1	-1.8319	-1.1818
		22				2.1289	0.8284	-2.7612	0.1143	0.0405	0.0825	0.2145	-0.1716	-0.0254	0.1143	0.0405	-0.0204	22.1	-2.0289	-0.3145
		23				1.4444	0.691	-2.659	0.1582	0.056	0.0705	0.4657	-0.309	0.2012	0.1582	0.056	-0.0371	22.1	-2.3444	**0.4343**
CFC Bank	15.1	7	13.3	43	0.5	8.5528	0.9981	-0.8938	0.0013	0.0006	0.0326	0.0027	-0.0019	-0.0233	0.0013	0.0006	-0.0002	14.3	-1.2528	-7.3027
		17				1.497	0.4923	-2.6204	0.0869	0.0426	0.0297	2.3041	-0.5077	-0.5063	0.0869	0.0426	-0.0498	14.3	-4.197	**0.3959**
		16				1.8819	0.5715	-2.6989	0.0855	0.0419	0.0337	1.7532	-0.4285	-0.7092	0.0855	0.0419	-0.0411	14.3	-3.5819	-0.0532
Diamond Trust Banl	23.9	17	13.3	25	0.5	8.0054	0.9916	-2.1823	0.0054	0.0039	0.0785	0.0125	-0.0084	-0.0683	0.0054	0.0039	-0.0011	26	0.9946	-9.0125
		27				1.1337	0.4108	-2.7972	0.0921	0.0657	0.0434	2.4979	-0.5892	0.5604	0.0921	0.0657	-0.0829	26	-2.1337	-1.4979
		34				0.1083	0.0631	-0.7091	0.0293	0.0209	0.007	8.0224	-0.9369	3.519	0.0293	0.0209	-0.1521	26	-8.1083	-0.0224
		22				3.7489	0.8246	-3.2117	0.0611	0.0436	0.0798	0.4345	-0.1754	-0.4758	0.0611	0.0436	-0.0231	26	**0.2511**	-4.4345
		23				3.0612	0.7522	-3.3187	0.0749	0.0535	0.0746	0.6825	-0.2478	-0.4585	0.0749	0.0535	-0.033	26	-0.0612	-3.6825
Housing Finance Cc	13.1	7	13.3	28	0.5	6.5501	0.9998	-0.8718	0.0002	0.0001	0.0327	0.0001	-0.0002	-0.0013	0.0002	0.0001	0	10.3	-3.2501	-3.3001
of Kenya		17				0.2463	0.189	-0.9978	0.1043	0.0251	0.0111	3.0533	-0.811	1.1162	0.1043	0.0251	-0.0684	10.3	-6.9463	3.6467
		10				3.7829	0.9639	-1.3808	0.0305	0.0073	0.0442	0.04	-0.0361	-0.1373	0.0305	0.0073	-0.0026	10.3	-3.4829	-0.34
		11				2.9311	0.9061	-1.6226	0.0646	0.0155	0.0447	0.1239	-0.0939	-0.2547	0.0646	0.0155	-0.0068	10.3	-3.6311	**0.5761**
		12				2.1703	0.8099	-1.8256	0.1047	0.0251	0.0422	0.2988	-0.1901	-0.3334	0.1047	0.0251	-0.0139	10.3	-3.8703	1.4012
ICDC Investments	48.3	49	13.3	8	0.5	2.7077	0.8286	-5.654	0.0931	0.0869	0.1866	0.2575	-0.1714	0.4394	0.0931	0.0869	-0.0427	51	-0.7077	-2.2575
Co Ltd		59				0.0089	0.0098	-0.1331	0.0096	0.0089	0.0023	6.9158	-0.9902	7.2039	0.0096	0.0089	-0.2737	51	-8.0089	1.0842
		52				0.9247	0.4594	-3.9106	0.1453	0.1355	0.1063	1.2816	-0.5406	2.5559	0.1453	0.1355	-0.137	51	-1.9247	-0.2816
		53				0.5763	0.3305	-3.0348	0.1326	0.1238	0.0769	1.8689	-0.6695	3.556	0.1326	0.1238	-0.171	51	-2.5763	**0.1311**
		54				0.3374	0.2209	-2.1844	0.1086	0.1014	0.0517	2.5658	-0.7791	4.5308	0.1086	0.1014	-0.201	51	-3.3374	0.4342
Jubilee Insurance	28.4	18	13.3	23	0.5	11.5579	0.9995	-2.2446	0.0004	0.0004	0.0841	0.0006	-0.0005	-0.0062	0.0004	0.0004	-0.0001	23	-6.5579	-5.0006
Co Ltd		28				3.0819	0.7181	-3.8606	0.0731	0.0678	0.0866	0.8818	-0.2819	-0.3787	0.0731	0.0678	-0.0444	23	-8.0819	4.1182
		23				6.9511	0.963	-3.0844	0.0175	0.0162	0.102	0.0724	-0.037	-0.2242	0.0175	0.0162	-0.0056	23	-6.9511	-0.0724
		24				6.0794	0.9364	-3.3023	0.027	0.025	0.1026	0.1364	-0.0636	-0.3178	0.027	0.025	-0.0097	23	-7.0794	**0.8636**
KCB Ltd	43.9	24	13.3	23	0.5	21.443	1	-2.9849	0	0	0.1123	0	0	-0.0003	0	0	0	31.4	-14.043	-7.4
		34				12.1402	0.9804	-4.4467	0.0067	0.0148	0.1545	0.0543	-0.0196	-0.2186	0.0067	0.0148	-0.0046	31.4	-14.7402	2.4455

		31				14.903	0.9957	-3.9186	0.0018	0.0039	0.144	0.01	-0.0043	-0.0636	0.0018	0.0039	-0.001	31.4	-14.503	-0.41
		32				13.9757	0.9925	-4.0806	0.0029	0.0064	0.148	0.0184	-0.0075	-0.1013	0.0029	0.0064	-0.0017	31.4	-14.5757	**0.5816**
		33				13.0539	0.9876	-4.2564	0.0045	0.01	0.1515	0.0324	-0.0124	-0.1527	0.0045	0.01	-0.0029	31.4	-14.6539	1.5676
National Bank Ltd	6.3	4	13.3	29	0.5	2.5589	0.9959	-0.5095	0.0094	0.0005	0.0186	0.0018	-0.0041	-0.012	0.0094	0.0005	-0.0001	5	-1.5589	-1.0018
		5				1.6578	0.9399	-0.7208	0.0924	0.0053	0.0213	0.0363	-0.0601	-0.099	0.0924	0.0053	-0.0021	5	-1.6578	-0.0363
		6				0.9039	0.7468	-0.9184	0.2476	0.0143	0.019	0.2181	-0.2532	-0.1723	0.2476	0.0143	-0.0091	5	-1.9039	**0.7819**
NIC Bank Ltd	28.7	24	13.3	14	0.5	6.2484	0.9943	-3.0084	0.0058	0.0033	0.1114	0.0054	-0.0057	-0.0239	0.0058	0.0033	-0.0009	26.9	-3.3484	-2.9054
		34				0.2304	0.1608	-1.2764	0.0859	0.0495	0.0219	3.3445	-0.8392	2.9517	0.0859	0.0495	-0.1371	26.9	-7.3304	3.7555
		27				3.5602	0.9095	-3.4592	0.0574	0.0331	0.1127	0.1244	-0.0905	-0.1016	0.0574	0.0331	-0.0136	26.9	-3.6602	-0.0244
		28				2.7624	0.834	-3.522	0.0877	0.0506	0.1059	0.2622	-0.166	-0.04	0.0877	0.0506	-0.0251	26.9	-3.8624	**0.8378**
		29				2.0562	0.731	-3.4525	0.1162	0.067	0.0946	0.4918	-0.269	0.1538	0.1162	0.067	-0.0411	26.9	-4.1562	1.6082
Pan Africa Ins Co	24	6	13.3	109	0.5	18.4829	0.9884	-1.2571	0.0016	0.0051	0.0262	0.0971	-0.0116	-0.511	0.0016	0.0051	-0.0019	26.9	2.4171	-20.9971
		16				11.3492	0.8408	-5.6599	0.0131	0.0412	0.0441	2.3206	-0.1592	-3.6702	0.0131	0.0412	-0.0307	26.9	-0.4492	-13.2206
		26				7.0871	0.6435	-8.0076	0.0202	0.0633	0.0418	7.4155	-0.3565	-4.7744	0.0202	0.0633	-0.0799	26.9	-6.1871	-8.3155
		36				4.5858	0.4783	-8.2847	0.0215	0.0676	0.0345	14.2714	-0.5217	-3.8079	0.0215	0.0676	-0.134	26.9	-13.6858	-5.1714
		46				3.0707	0.3548	-7.6084	0.0201	0.0632	0.0272	22.1134	-0.6452	-1.888	0.0201	0.0632	-0.188	26.9	-22.1707	-3.0134
		56				2.1186	0.2651	-6.6239	0.0177	0.0556	0.0212	30.5183	-0.7349	0.34	0.0177	0.0556	-0.2408	26.9	-31.2186	-1.4183
		66				1.4997	0.2002	-5.6211	0.0151	0.0475	0.0165	39.2565	-0.7998	2.5864	0.0151	0.0475	-0.2923	26.9	-40.5997	-0.1565
		76				1.0852	0.1529	-4.7123	0.0128	0.0401	0.0129	48.1992	-0.8471	4.7387	0.0128	0.0401	-0.3426	26.9	-50.1852	0.9008
		67				1.4506	0.1948	-5.525	0.0149	0.0468	0.0161	40.1431	-0.8052	2.8068	0.0149	0.0468	-0.2973	26.9	-41.5506	-0.0431
		68				1.4034	0.1895	-5.43	0.0146	0.046	0.0157	41.0316	-0.8105	3.0262	0.0146	0.046	-0.3024	26.9	-42.5034	**0.0684**
		69				1.358	0.1844	-5.3361	0.0144	0.0452	0.0153	41.922	-0.8156	3.2444	0.0144	0.0452	-0.3075	26.9	-43.458	0.178
		70				1.3144	0.1795	-5.2433	0.0142	0.0445	0.015	42.8141	-0.8205	3.4616	0.0142	0.0445	-0.3125	26.9	-44.4144	0.2859
		71				1.2725	0.1747	-5.1518	0.0139	0.0437	0.0146	43.7079	-0.8253	3.6775	0.0139	0.0437	-0.3176	26.9	-45.3725	0.3921
Standard Chartered Bank Ltd	48.9	45	13.3	15	0.5	6.9655	0.9283	-5.8165	0.0264	0.0473	0.1921	0.1724	-0.0717	-0.2205	0.0264	0.0473	-0.0184	55.8	3.8345	-10.9724
		55				1.0818	0.334	-3.9145	0.0702	0.1258	0.0763	3.6459	-0.666	2.9251	0.0702	0.1258	-0.1811	55.8	-0.2818	-4.4459
		65				0.0421	0.0225	-0.4188	0.0103	0.0185	0.0053	11.9632	-0.9775	7.6643	0.0103	0.0185	-0.2988	55.8	-9.2421	-2.7632
		54				1.3878	0.3991	-4.4115	0.0744	0.1335	0.0906	3.0162	-0.6009	2.3037	0.0744	0.1335	-0.162	55.8	**0.4122**	-4.8162

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JULY TO DECEMBER 1999

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.99*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	5.7	**3**	13.29	42	0.5	2.8962	0.9944	-0.3956	0.0095	0.0006	0.0139	0.0034	-0.0056	-0.0226	0.0095	0.0006	-0.0002	5.9	**0.0038**	-2.9034
		4				2.0053	0.9412	-0.645	0.0693	0.0047	0.0168	0.0481	-0.0588	-0.1476	0.0693	0.0047	-0.0019	5.9	-0.1053	-1.9481
		5				1.2525	0.792	-0.9186	0.1693	0.0116	0.0163	0.231	-0.208	-0.2969	0.1693	0.0116	-0.0071	5.9	-0.3525	-1.131
		6				0.7115	0.5791	-1.0061	0.231	0.0158	0.0129	0.6258	-0.4209	-0.26	0.231	0.0158	-0.0151	5.9	-0.8115	-0.5258
		7				0.3751	0.3747	-0.8757	0.2239	0.0153	0.0088	1.2251	-0.6253	-0.0052	0.2239	0.0153	-0.0239	5.9	-1.4751	-0.1251
		8				0.1873	0.2209	-0.6449	0.1753	0.012	0.0054	1.973	-0.7791	0.35	0.1753	0.012	-0.0321	5.9	-2.2873	**0.127**
Bamburi Cement Ltd	26	14	13.29	31	0.5	12.901	0.9994	-1.7508	0.0004	0.0004	0.0654	0.001	-0.0006	-0.0099	0.0004	0.0004	-0.0001	26.3	-0.601	-12.301
		24				4.3386	0.7817	-3.8045	0.0517	0.0542	0.0799	0.7956	-0.2183	-0.82	0.0517	0.0542	-0.0324	26.3	-2.0386	-3.0956
		34				0.6073	0.2087	-2.2767	0.0504	0.0528	0.0241	6.4214	-0.7913	1.9514	0.0504	0.0528	-0.135	26.3	-8.3073	1.2786
		29				1.7947	0.466	-3.637	0.0697	0.0731	0.0516	2.9303	-0.534	-0.0307	0.0697	0.0731	-0.0841	26.3	-4.4947	-0.2303
		30				1.466	0.4051	-3.4142	0.068	0.0713	0.0453	3.5373	-0.5949	0.3165	0.068	0.0713	-0.095	26.3	-5.166	**0.1627**
BAT Ltd	71.5	47	13.29	27	0.5	27.5402	0.9959	-5.9695	0.0009	0.0062	0.2183	0.0185	-0.0041	-0.1248	0.0009	0.0062	-0.0016	64.5	-10.0402	-17.5185
		57				18.4822	0.9485	-7.9979	0.0077	0.0534	0.2467	0.3177	-0.0515	-0.9096	0.0077	0.0534	-0.02	64.5	-10.9822	-7.8177
		67				10.6647	0.7835	-10.0325	0.0215	0.1483	0.2268	1.8573	-0.2165	-1.7006	0.0215	0.1483	-0.0867	64.5	-13.1647	**0.6427**
		66				11.3538	0.8059	-9.9021	0.0201	0.139	0.2313	1.6106	-0.1941	-1.6947	0.0201	0.139	-0.0775	64.5	-12.8538	-0.1106
BOC Gases Ltd	26	15	13.29	31	0.5	11.9674	0.9983	-1.8907	0.001	0.001	0.0699	0.003	-0.0017	-0.0254	0.001	0.001	-0.0002	26.3	-0.6674	-11.303
		25				3.7034	0.723	-3.9145	0.0588	0.0616	0.0755	1.0962	-0.277	-0.8056	0.0588	0.0616	-0.0415	26.3	-2.4034	-2.3962
		35				0.4795	0.1728	-1.9904	0.0449	0.047	0.0201	7.2293	-0.8272	2.3621	0.0449	0.047	-0.1437	26.3	-9.1795	1.4707
		29				1.7947	0.466	-3.637	0.0697	0.0731	0.0516	2.9303	-0.534	-0.0307	0.0697	0.0731	-0.0841	26.3	-4.4947	-0.2303
		30				1.466	0.4051	-3.4142	0.068	0.0713	0.0453	3.5373	-0.5949	0.3165	0.068	0.0713	-0.095	26.3	-5.166	**0.1627**
Carbacid Investment	95.6	66	13.29	29	0.5	33.9363	0.9872	-8.6787	0.0017	0.0223	0.3022	0.0931	-0.0128	-0.4712	0.0017	0.0223	-0.0066	76	-23.9363	-10.0931
		76				25.0476	0.9389	-10.9691	0.0062	0.0817	0.3235	0.5615	-0.0611	-1.5181	0.0062	0.0817	-0.032	76	-25.0476	-0.5615
		86				17.1359	0.8271	-13.2461	0.0131	0.1729	0.3097	2.007	-0.1729	-2.5515	0.0131	0.1729	-0.0927	76	-27.1359	7.993
		76				25.0476	0.9389	-10.9691	0.0062	0.0817	0.3235	0.5615	-0.0611	-1.5181	0.0062	0.0817	-0.032	76	-25.0476	-0.5615
		77				24.2011	0.9308	-11.2188	0.0068	0.09	0.3239	0.6508	-0.0692	-1.6434	0.0068	0.09	-0.0363	76	-25.2011	**0.3492**
Crown Berger Ltd	8.5	**3**	13.29	69	0.5	5.7021	0.994	-0.4352	0.0041	0.001	0.0137	0.0093	-0.006	-0.0621	0.0041	0.001	-0.0003	10	**1.2979**	-7.0093
		13				0.6569	0.3118	-1.7318	0.0853	0.0213	0.01	4.3211	-0.6882	-0.1152	0.0853	0.0213	-0.0509	10	-3.6569	-1.3211
		21				0.108	0.0703	-0.6237	0.0325	0.0081	0.0024	11.2579	-0.9297	1.9878	0.0325	0.0081	-0.0958	10	-11.108	-0.2579
		7				2.6221	0.7817	-1.757	0.0711	0.0177	0.0201	0.672	-0.2183	-0.8865	0.0711	0.0177	-0.0126	10	**0.3779**	-3.672
		8				2.0985	0.693	-1.9608	0.0847	0.0211	0.019	1.0842	-0.307	-0.966	0.0847	0.0211	-0.0185	10	-0.0985	-3.0842
		9				1.6702	0.6037	-2.0583	0.0929	0.0232	0.0173	1.5916	-0.3963	-0.9391	0.0929	0.0232	-0.0248	10	-0.6702	-2.5916
		10				1.3248	0.5188	-2.0626	0.0961	0.024	0.0154	2.1819	-0.4812	-0.819	0.0961	0.024	-0.0314	10	-1.3248	-2.1819
Dunlop Kenya Ltd	15	4	13.29	57	0.5	11.2574	0.9999	-0.5003	0.0001	0.0001	0.0187	0.0002	-0.0001	-0.0028	0.0001	0.0001	0	9.8	-5.4574	-5.8002
		14				3.3176	0.7046	-3.0511	0.0571	0.0366	0.0363	1.4175	-0.2954	-1.3101	0.0571	0.0366	-0.0292	9.8	-7.5176	**2.7825**
																		9.8		
		9				6.731	0.9488	-1.6319	0.0174	0.0111	0.0375	0.1524	-0.0512	-0.5127	0.0174	0.0111	-0.0046	9.8	-5.931	-0.9524
		10				5.9234	0.915	-1.9774	0.0257	0.0165	0.039	0.2805	-0.085	-0.7339	0.0257	0.0165	-0.0078	9.8	-6.1234	-0.0805
		11				5.1733	0.872	-2.3161	0.0346	0.0222	0.0395	0.4661	-0.128	-0.9481	0.0346	0.0222	-0.0119	9.8	-6.3733	**0.7339**

E A Cables Ltd	19.6	6	13.29	68	0.5	13.9929	0.9977	-0.8059	0.0007	0.001	0.0278	0.0072	-0.0023	-0.0597	0.0007	0.001	-0.0003	16	-3.9929	-10.0072
		16				6.0875	0.7883	-3.9731	0.0307	0.0401	0.0468	1.4589	-0.2117	-1.9834	0.0307	0.0401	-0.028	16	-6.0875	-1.4589
		26				2.2135	0.4172	-4.4711	0.0414	0.0541	0.0298	6.9419	-0.5828	-1.2378	0.0414	0.0541	-0.0918	16	-12.2135	3.0581
		17				5.5252	0.75	-4.214	0.0337	0.044	0.0459	1.8322	-0.25	-2.1	0.0337	0.044	-0.0337	16	-6.5252	-0.8322
		18				5.0076	0.7108	-4.4078	0.0363	0.0474	0.0446	2.2503	-0.2892	-2.1694	0.0363	0.0474	-0.0396	16	-7.0076	-0.2503
		19				4.5329	0.6712	-4.5539	0.0384	0.0501	0.0431	2.7114	-0.3288	-2.1912	0.0384	0.0501	-0.0458	16	-7.5329	**0.2886**
E A Packaging Ltd	14	5	13.29	51	0.5	9.3224	0.9994	-0.6318	0.0004	0.0002	0.0233	0.001	-0.0006	-0.01	0.0004	0.0002	0	7	-7.3224	-2.001
		15				1.9881	0.5688	-2.7782	0.0778	0.0389	0.0299	2.0237	-0.4312	-0.9129	0.0778	0.0389	-0.0403	7	-9.9881	5.9763
		7				7.4717	0.9889	-0.9944	0.0058	0.0029	0.0319	0.0217	-0.0111	-0.1239	0.0058	0.0029	-0.0009	7	-7.4717	-0.0217
		8				6.5754	0.9723	-1.2564	0.0126	0.0063	0.0352	0.061	-0.0277	-0.2615	0.0126	0.0063	-0.0022	7	-7.5754	**0.939**
		9				5.7176	0.9441	-1.5659	0.0223	0.0112	0.0375	0.139	-0.0559	-0.4467	0.0223	0.0112	-0.0046	7	-7.7176	1.861
		10				4.9137	0.9028	-1.8946	0.034	0.017	0.0386	0.2708	-0.0972	-0.651	0.034	0.017	-0.0082	7	-7.9137	2.7292
EA Portland Cement	14.5	2	13.29	107	0.5	12.6324	0.999	-0.2838	0.0003	0.0004	0.0093	0.0039	-0.001	-0.0351	0.0003	0.0004	-0.0001	11.2	-3.4324	-9.2039
		12				5.6311	0.7631	-4.1086	0.0281	0.0316	0.0272	2.3597	-0.2369	-2.6163	0.0281	0.0316	-0.029	11.2	-6.4311	-1.5597
		22				2.6417	0.4662	-4.9082	0.0362	0.0408	0.0206	8.7273	-0.5338	-2.1724	0.0362	0.0408	-0.0823	11.2	-13.4417	2.0727
		15				4.4419	0.6632	-4.6927	0.0333	0.0374	0.0259	3.9776	-0.3368	-2.8274	0.0333	0.0374	-0.0443	11.2	-8.2419	-0.1776
		16				4.112	0.6316	-4.807	0.0344	0.0387	0.0252	4.5834	-0.3684	-2.8174	0.0344	0.0387	-0.0496	11.2	-8.912	**0.2166**
		17				3.8103	0.601	-4.8875	0.0352	0.0396	0.0245	5.2174	-0.399	-2.7734	0.0352	0.0396	-0.055	11.2	-9.6103	0.5826
Firestone EA Ltd	16.5	11	13.29	24	0.5	6.209	0.9979	-1.3815	0.0023	0.0008	0.0513	0.0018	-0.0021	-0.0136	0.0023	0.0008	-0.0002	16	-1.209	-5.0018
		21				0.2401	0.1724	-1.0612	0.0912	0.0298	0.013	3.39	-0.8276	1.5503	0.0912	0.0298	-0.0852	16	-5.2401	1.61
																		16		
		16				1.9978	0.7446	-2.2672	0.1148	0.0375	0.0514	0.4692	-0.2554	-0.2775	0.1148	0.0375	-0.0234	16	-1.9978	-0.4692
		17				1.4175	0.6181	-2.2348	0.1362	0.0445	0.0439	0.8246	-0.3819	-0.1208	0.1362	0.0445	-0.0356	16	-2.4175	**0.1754**
EABL	77.1	69	13.29	20	0.5	13.035	0.9075	-9.3735	0.0152	0.0904	0.2847	0.4989	-0.0925	-0.7929	0.0152	0.0904	-0.0382	69.9	-12.135	-1.3989
		79				6.0331	0.6437	-9.8587	0.0342	0.2032	0.218	2.8541	-0.3563	-0.0346	0.0342	0.2032	-0.1516	69.9	-15.1331	6.2459
		70				12.2197	0.8895	-9.5474	0.0173	0.1029	0.2818	0.6193	-0.1105	-0.8425	0.0173	0.1029	-0.0457	69.9	-12.3197	-0.5193
		71				11.4254	0.8694	-9.704	0.0195	0.1157	0.278	0.7608	-0.1306	-0.8747	0.0195	0.1157	-0.0542	69.9	-12.5254	**0.3392**
Kenya National Mills	14	3	13.29	77	0.5	11.1944	0.9994	-0.3885	0.0003	0.0002	0.014	0.0015	-0.0006	-0.0155	0.0003	0.0002	-0.0001	9.5	-4.6944	-6.5015
		13				3.8153	0.7021	-3.4412	0.0455	0.0343	0.0301	1.9796	-0.2979	-1.8246	0.0455	0.0343	-0.0308	9.5	-7.3153	1.5204
		23																		
		8				6.8522	0.9225	-1.912	0.019	0.0144	0.0303	0.3378	-0.0775	-0.9172	0.019	0.0144	-0.0071	9.5	-5.3522	-1.8378
		9				6.1241	0.886	-2.3047	0.0253	0.0191	0.0314	0.5455	-0.114	-1.1855	0.0253	0.0191	-0.0107	9.5	-5.6241	-1.0455
		10				5.457	0.8443	-2.6675	0.0314	0.0237	0.0318	0.8141	-0.1557	-1.4239	0.0314	0.0237	-0.015	9.5	-5.957	-0.3141
		11				4.8512	0.7988	-2.9834	0.0369	0.0278	0.0317	1.144	-0.2012	-1.6155	0.0369	0.0278	-0.0198	9.5	-6.3512	**0.356**
Kenya Oil Co Ltd	76	43	13.29	42	0.5	35.8583	0.989	-5.8779	0.0013	0.0156	0.1965	0.0938	-0.011	-0.5306	0.0013	0.0156	-0.0047	67.8	-11.0583	-24.8938
		53				27.0179	0.9436	-8.5007	0.005	0.061	0.2235	0.6105	-0.0564	-1.9098	0.005	0.061	-0.0245	67.8	-12.2179	-15.4105
		63				19.2008	0.8423	-11.3958	0.0107	0.1295	0.2241	2.1505	-0.1577	-3.5614	0.0107	0.1295	-0.0707	67.8	-14.4008	-6.9505
		73				12.9035	0.6942	-13.2121	0.0155	0.1885	0.1993	5.2103	-0.3058	-4.1341	0.0155	0.1885	-0.1422	67.8	-18.1035	-0.0103
		83				8.2617	0.5301	-13.2352	0.0176	0.2138	0.1601	9.9256	-0.4699	-2.9137	0.0176	0.2138	-0.2282	67.8	-23.4617	5.2744
		74				12.3659	0.678	-13.2972	0.0159	0.1927	0.1958	5.6084	-0.322	-4.0949	0.0159	0.1927	-0.1504	67.8	-18.5659	**0.5916**
KPLC	111.3	69	13.29	25	0.5	46.7403	0.9992	-8.6204	0.0001	0.0021	0.3224	0.0043	-0.0008	-0.0399	0.0001	0.0021	-0.0004	92.5	-23.2403	-23.5043
		79				37.4349	0.9919	-10.1336	0.0011	0.0175	0.3648	0.056	-0.0081	-0.3095	0.0011	0.0175	-0.0048	92.5	-23.9349	-13.556

		89				28.3799	0.9581	-12.1607	0.0045	0.0704	0.3913	0.3581	-0.0419	-1.0931	0.0045	0.0704	-0.0251	92.5	-24.8799	-3.8581
		99				20.0506	0.8701	-14.3657	0.0107	0.1664	0.3839	1.3859	-0.1299	-2.0545	0.0107	0.1664	-0.0792	92.5	-26.5506	5.1141
		93				24.9264	0.9306	-13.0765	0.0068	0.1049	0.3933	0.6474	-0.0694	-1.5114	0.0068	0.1049	-0.0418	92.5	-25.4264	-0.1474
		94				24.0857	0.9222	-13.3041	0.0074	0.1146	0.3928	0.7424	-0.0778	-1.6146	0.0074	0.1146	-0.047	92.5	-25.5857	**0.7576**
Total Kenya Ltd	47	33	13.29	25	0.5	16.1412	0.9931	-4.2173	0.0023	0.0064	0.1527	0.0196	-0.0069	-0.1135	0.0023	0.0064	-0.0017	48	-1.1412	-15.0196
		43				7.5647	0.8333	-6.2758	0.0301	0.083	0.158	0.8002	-0.1667	-0.9285	0.0301	0.083	-0.0432	48	-2.5647	-5.8002
		53				2.2606	0.4147	-5.5288	0.0469	0.1295	0.0862	4.8532	-0.5853	1.062	0.0469	0.1295	-0.1618	48	-7.2606	**0.1468**
		52				2.6045	0.4572	-5.8049	0.0477	0.1318	0.0944	4.2614	-0.5428	0.6616	0.0477	0.1318	-0.1489	48	-6.6045	-0.2614
Unga Group Ltd	31.1	5	13.29	103	0.5	26.4336	0.9985	-0.7254	0.0002	0.0011	0.0231	0.0121	-0.0015	-0.1036	0.0002	0.0011	-0.0003	26	-5.4336	-21.0121
		15				18.0795	0.9274	-4.5586	0.0061	0.0304	0.0538	1.0151	-0.0726	-2.6932	0.0061	0.0304	-0.0164	26	-7.0795	-12.0151
		25				12.1533	0.7749	-8.3822	0.0132	0.066	0.0597	4.446	-0.2251	-5.2733	0.0132	0.066	-0.0572	26	-11.1533	-5.446
		35				8.2719	0.6153	-10.1	0.0169	0.084	0.0543	9.9218	-0.3847	-5.7476	0.0169	0.084	-0.1094	26	-17.2719	-0.9218
		45				5.7426	0.4793	-10.2421	0.0176	0.0876	0.0458	16.7495	-0.5207	-4.6461	0.0176	0.0876	-0.1647	26	-24.7426	2.2505
		37				7.677	0.5859	-10.2275	0.0172	0.0857	0.0527	11.1982	-0.4141	-5.6263	0.0172	0.0857	-0.1204	26	-18.677	-0.1982
		38				7.398	0.5715	-10.2697	0.0173	0.0863	0.0519	11.855	-0.4285	-5.5442	0.0173	0.0863	-0.1259	26	-19.398	**0.145**
		39				7.1307	0.5575	-10.2989	0.0174	0.0868	0.051	12.5234	-0.4425	-5.449	0.0174	0.0868	-0.1314	26	-20.1307	0.4766
		40				6.8744	0.5437	-10.3157	0.0175	0.0872	0.0502	13.2028	-0.4563	-5.3415	0.0175	0.0872	-0.137	26	-20.8744	0.7972

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JANUARY-JUNE 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.00*	*Value of European call option*	*Value of European put option*
Brooke Bond	104.7	68	12.07	28	0.5	40.7163	0.9951	-7.9548	0.0007	0.0105	0.3174	0.0339	-0.0049	-0.2279	0.0007	0.0105	-0.0027	74	-34.7163	-6.0339
		78				31.5202	0.9707	-9.8465	0.0032	0.0494	0.3505	0.2521	-0.0293	-0.9833	0.0032	0.0494	-0.0166	74	-35.5202	3.7479
		73				36.0758	0.987	-8.8136	0.0016	0.0248	0.3363	0.1006	-0.013	-0.5185	0.0016	0.0248	-0.0073	74	-35.0758	-1.1006
		74				35.1562	0.9845	-9.0061	0.0019	0.0289	0.3396	0.1224	-0.0155	-0.5974	0.0019	0.0289	-0.0087	74	-35.1562	-0.1224
		75				34.2403	0.9816	-9.2058	0.0022	0.0333	0.3427	0.148	-0.0184	-0.6835	0.0022	0.0333	-0.0104	74	-35.2403	**0.852**
Eaagads Ltd	25	17	12.07	21	0.5	8.9967	0.999	-1.9414	0.0009	0.0006	0.0799	0.0011	-0.001	-0.0097	0.0009	0.0006	-0.0001	25	-0.9967	-8.0011
		27				1.292	0.485	-2.7875	0.1074	0.0705	0.0542	1.7107	-0.515	0.2806	0.1074	0.0705	-0.0729	25	-3.292	**0.2893**
		26				1.7403	0.5857	-3.004	0.105	0.0689	0.0645	1.2176	-0.4143	-0.0496	0.105	0.0689	-0.0579	25	-2.7403	-0.2176
George Williamson	92	50	12.07	43	0.5	45.0241	0.9908	-6.263	0.0009	0.0162	0.2306	0.0958	-0.0092	-0.5815	0.0009	0.0162	-0.0047	75	-20.0241	-25.0958
		60				36.0139	0.9605	-8.7056	0.0031	0.0555	0.2618	0.5	-0.0395	-1.8877	0.0031	0.0555	-0.0207	75	-21.0139	-15.5
		70				27.7205	0.8942	-11.6975	0.0065	0.1189	0.2727	1.6209	-0.1058	-3.7433	0.0065	0.1189	-0.0568	75	-22.7205	-6.6209
		80				20.54	0.7911	-14.3428	0.0103	0.1869	0.2612	3.8548	-0.2089	-5.2523	0.0103	0.1869	-0.1154	75	-25.54	1.1452
		78				21.873	0.8142	-13.8882	0.0096	0.1741	0.2652	3.3049	-0.1858	-5.0249	0.0096	0.1741	-0.102	75	-24.873	-0.3049
		79				21.1998	0.8028	-14.1213	0.0099	0.1806	0.2633	3.5731	-0.1972	-5.1445	0.0099	0.1806	-0.1086	75	-25.1998	**0.4269**
Kakuzi Ltd	91.5	50	12.07	29	0.5	44.4304	0.9996	-5.7047	0.0001	0.001	0.2352	0.0021	-0.0004	-0.0231	0.0001	0.001	-0.0002	66.5	-27.9304	-16.5021
		60				35.06	0.993	-7.1024	0.001	0.0127	0.279	0.0461	-0.007	-0.2845	0.001	0.0127	-0.0035	66.5	-28.56	-6.5461
		70				25.9678	0.9557	-9.1763	0.005	0.0605	0.3074	0.3683	-0.0443	-1.2221	0.005	0.0605	-0.0221	66.5	-29.4678	**3.1317**
																		66.5		
		65				30.4504	0.9805	-8.0422	0.0025	0.0306	0.2963	0.1436	-0.0195	-0.6562	0.0025	0.0306	-0.0096	66.5	-28.9504	-1.6436
		66				29.5412	0.9767	-8.2547	0.0029	0.0356	0.2991	0.1759	-0.0233	-0.755	0.0029	0.0356	-0.0115	66.5	-29.0412	-0.6759
		67				28.6376	0.9724	-8.4749	0.0034	0.0411	0.3017	0.2138	-0.0276	-0.8616	0.0034	0.0411	-0.0137	66.5	-29.1376	**0.2862**
Kapchorua Tea Co	150	**151**	12.07	0	0.5	7.8433	1	-17.1583	0	0	0.7108	0	0	0	0	0	0	150	-8.8433	**1**
Limuru Tea Co	650	678	12.07	0	0.5	11.7071	1	-77.042	0	0	3.1915	0	0	0	0	0	0	650	-39.7071	28
Rea Vipingo Ltd	4.95	3	12.07	22	0.5	2.1257	0.9999	-0.3412	0.0006	0	0.0141	0	-0.0001	-0.0003	0.0006	0	0	3.85	-1.2757	-0.85
		4				1.1949	0.9668	-0.4904	0.0961	0.0026	0.018	0.0106	-0.0332	-0.0359	0.0961	0.0026	-0.0009	3.85	-1.3449	**0.1394**
Sasini Tea & Coffe	44.9	30	12.07	30	0.5	16.6953	0.989	-3.62	0.003	0.0092	0.1386	0.0383	-0.011	-0.2111	0.003	0.0092	-0.0027	35	-11.6953	-5.0383
		40				8.2348	0.8252	-5.9317	0.027	0.0818	0.1441	0.9922	-0.1748	-1.3864	0.027	0.0818	-0.0442	35	-13.2348	4.0078
		35				12.2113	0.9412	-4.7438	0.0123	0.0372	0.1502	0.2615	-0.0588	-0.7667	0.0123	0.0372	-0.0145	35	-12.2113	-0.2615
		36				11.3634	0.9239	-4.9986	0.015	0.0454	0.1506	0.3551	-0.0761	-0.9078	0.015	0.0454	-0.0189	35	-12.3634	**0.6449**

SIMULATION OF OPTION VALUES USING BOPSCOL
COMMERCIAL AND SERVICES SECTOR-JANUARY-JUNE 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiratior 30.6.00*	*Value of European call option*	*Value of European put option*
A Baumann & Co	15	9	12.07	22	0.5	6.5271	0.9999	-1.0233	0.0002	0	0.0424	0.0001	-0.0001	-0.0007	0.0002	0	0	13.8	-1.7271	-4.8001
		17				0.5409	0.3674	-1.4788	0.1614	0.04	0.0248	1.5453	-0.6326	0.4529	0.1614	0.04	-0.0552	13.8	-3.7409	**1.6547**
																		13.8		
		12				3.73	0.9713	-1.4614	0.0281	0.007	0.0542	0.0273	-0.0287	-0.0978	0.0281	0.007	-0.0023	13.8	-1.93	-1.8273
		13				2.8555	0.9171	-1.6721	0.0655	0.0162	0.0545	0.0942	-0.0829	-0.1949	0.0655	0.0162	-0.0067	13.8	-2.0555	-0.8942
		14				2.0681	0.8184	-1.8478	0.1131	0.028	0.051	0.2482	-0.1816	-0.257	0.1131	0.028	-0.0149	13.8	-2.2681	-0.0482
		15				1.4089	0.6793	-1.895	0.1534	0.038	0.0439	0.5304	-0.3207	-0.1906	0.1534	0.038	-0.0267	13.8	-2.6089	**0.6696**
CMC Holdings Ltd	30	15	12.07	27	0.5	24.8785	1	-1.7045	0	0	0.0706	0	0	0	0	0	0	16.8	-23.0785	-1.8
		25				15.4714	0.9969	-2.8949	0.0013	0.0026	0.117	0.0073	-0.0031	-0.0541	0.0013	0.0026	-0.0006	16.8	-23.6714	8.1927
		16				23.937	1	-1.8181	0	0	0.0753	0	0	0	0	0	0	16.8	-23.137	-0.8
		17				22.9956	1	-1.9318	0	0	0.08	0	0	0	0	0	0	16.8	-23.1956	**0.2**
Car & General	9	**2**	12.07	94	0.5	7.1253	0.9964	-0.2871	0.0018	0.0007	0.0092	0.0082	-0.0036	-0.0598	0.0018	0.0007	-0.0002	10.05	**0.9247**	-8.0582
		12				1.6405	0.4961	-2.7274	0.0667	0.0254	0.0141	3.9377	-0.5039	-1.3638	0.0667	0.0254	-0.0424	10.05	-3.5905	-1.9877
		22				0.4385	0.1784	-1.7016	0.0436	0.0166	0.0058	12.15	-0.8216	0.7983	0.0436	0.0166	-0.0977	10.05	-12.3885	-0.2
		28				0.2196	0.0995	-1.1276	0.0292	0.0111	0.0034	17.5797	-0.9005	2.0541	0.0292	0.0111	-0.1284	10.05	-18.1696	**0.3703**
		7				3.4436	0.7885	-2.1722	0.0484	0.0184	0.0183	1.0336	-0.2115	-1.3767	0.0484	0.0184	-0.0147	10.05	-0.3936	-4.0836
		6				4.0069	0.8492	-1.8384	0.0391	0.0149	0.0182	0.6555	-0.1508	-1.1566	0.0391	0.0149	-0.0101	10.05	**0.0431**	-4.7055
		23				0.3889	0.1615	-1.5926	0.0409	0.0156	0.0053	13.0419	-0.8385	1.0209	0.0409	0.0156	-0.1029	10.05	-13.3389	-0.0919
		24				0.3456	0.1463	-1.4888	0.0383	0.0146	0.0049	13.9401	-0.8537	1.2384	0.0383	0.0146	-0.1081	10.05	-14.2956	**0.0099**
Express Kenya Ltd	18.9	15	12.07	13	0.5	4.7788	0.9994	-1.7069	0.0013	0.0003	0.0705	0.0003	-0.0006	-0.0024	0.0013	0.0003	-0.0001	19.05	-0.7288	-4.0503
		21				0.357	0.3286	-1.3347	0.2081	0.0483	0.0293	1.2271	-0.6714	1.0515	0.2081	0.0483	-0.0696	19.05	-2.307	0.7229
		19				1.2981	0.7406	-2.0956	0.1865	0.0433	0.0635	0.2853	-0.2594	0.0634	0.1865	0.0433	-0.0259	19.05	-1.2481	-0.3353
		20				0.7278	0.5347	-1.8224	0.2288	0.0531	0.0469	0.6565	-0.4653	0.4502	0.2288	0.0531	-0.0473	19.05	-1.6778	**0.2935**
Kenya Airways	7.85	6	12.07	25	0.5	2.2157	0.9744	-0.7385	0.0429	0.0033	0.0272	0.0143	-0.0256	-0.0567	0.0429	0.0033	-0.0011	8	-0.2157	-2.0143
		7				1.3677	0.8595	-0.9589	0.1608	0.0124	0.0269	0.1078	-0.1405	-0.1635	0.1608	0.0124	-0.0061	8	-0.3677	-1.1078
		8				0.7157	0.6265	-1.0328	0.2729	0.021	0.021	0.3972	-0.3735	-0.1237	0.2729	0.021	-0.0166	8	-0.7157	-0.3972
		9				0.316	0.3656	-0.8301	0.271	0.0209	0.0128	0.9389	-0.6344	0.1926	0.271	0.0209	-0.0296	8	-1.316	**0.0611**
Marshalls EA Ltd	23.6	16	12.07	20	0.5	8.5376	0.9994	-1.8232	0.0006	0.0003	0.0752	0.0005	-0.0006	-0.0051	0.0006	0.0003	-0.0001	19.3	-5.2376	-3.3005
		26				0.9613	0.4257	-2.4049	0.1175	0.0654	0.0454	1.8386	-0.5743	0.5496	0.1175	0.0654	-0.077	19.3	-7.6613	4.8614
		19				5.7401	0.9788	-2.2649	0.0152	0.0085	0.0868	0.0274	-0.0212	-0.1059	0.0152	0.0085	-0.0026	19.3	-5.4401	**-0.3274**
		20				4.8409	0.9523	-2.4598	0.0297	0.0166	0.0882	0.0696	-0.0477	-0.1872	0.0297	0.0166	-0.006	19.3	-5.5409	0.6304
		21				3.9835	0.9071	-2.658	0.0498	0.0278	0.0871	0.1536	-0.0929	-0.2718	0.0498	0.0278	-0.0117	19.3	-5.6835	1.5464
Nation Media Grou	101	68	12.07	17	0.5	36.9826	0.9999	-7.7291	0	0.0002	0.3201	0.0002	-0.0001	-0.0022	0	0.0002	0	75	-29.9826	-7.0002
		78				27.5809	0.9967	-8.9434	0.0008	0.0072	0.3654	0.0128	-0.0033	-0.0802	0.0008	0.0072	-0.0018	75	-30.5809	2.9872
		73				32.2771	0.9994	-8.3118	0.0002	0.0014	0.3433	0.0018	-0.0006	-0.0167	0.0002	0.0014	-0.0003	75	-30.2771	-2.0018
		74				31.3366	0.9992	-8.4324	0.0002	0.002	0.3479	0.0028	-0.0008	-0.0237	0.0002	0.002	-0.0004	75	-30.3366	-1.0028

		75				30.3966	0.9988	-8.5553	0.0003	0.0028	0.3524	0.0042	-0.0012	-0.0329	0.0003	0.0028	-0.0006	75	-30.3966	-0.0042
		76				29.4571	0.9983	-8.681	0.0005	0.0039	0.3569	0.0062	-0.0017	-0.0451	0.0005	0.0039	-0.0009	75	-30.4571	**0.9938**
Pearl Drycleaners	3	2	12.07	26	0.5	1.1179	0.9957	-0.2326	0.023	0.0003	0.0093	0.0008	-0.0043	-0.0053	0.023	0.0003	-0.0001	2.4	-0.7179	-0.4008
		3				0.3125	0.6628	-0.4037	0.6622	0.0077	0.0084	0.1368	-0.3372	-0.0628	0.6622	0.0077	-0.0057	2.4	-0.9125	**0.4632**
Standard Newspap	11	2	12.07	110	0.5	9.1305	0.9961	-0.3202	0.0014	0.0009	0.0091	0.0133	-0.0039	-0.0929	0.0014	0.0009	-0.0003	6.1	-5.0305	-4.0961
		12				3.2275	0.6386	-3.6636	0.0438	0.0291	0.019	3.5247	-0.3614	-2.3	0.0438	0.0291	-0.0375	6.1	-9.1275	2.3753
		7				5.3827	0.8526	-2.4541	0.0269	0.0179	0.02	0.9727	-0.1474	-1.6587	0.0269	0.0179	-0.013	6.1	-6.2827	-0.0727
		8				4.8441	0.8095	-2.8159	0.0318	0.0211	0.0203	1.3755	-0.1905	-1.9068	0.0318	0.0211	-0.0174	6.1	-6.7441	**0.5245**
TPS Serena	16.2	3	12.07	97	0.5	13.3833	0.9981	-0.4044	0.0006	0.0007	0.0139	0.0077	-0.0019	-0.0635	0.0006	0.0007	-0.0002	15.95	-0.4333	-12.9577
		13				6.0965	0.7739	-4.119	0.0271	0.0344	0.0322	2.1352	-0.2261	-2.6418	0.0271	0.0344	-0.029	15.95	-3.1465	-5.0852
		23				2.7794	0.4681	-4.9985	0.0358	0.0456	0.024	8.2324	-0.5319	-2.385	0.0358	0.0456	-0.0842	15.95	-9.8294	-1.1824
		33				1.3598	0.2721	-4.0563	0.0299	0.038	0.0152	16.2272	-0.7279	-0.3065	0.0299	0.038	-0.1401	15.95	-18.4098	0.8228
		28				1.9266	0.3569	-4.6096	0.0336	0.0427	0.0193	12.0868	-0.6431	-1.428	0.0336	0.0427	-0.1125	15.95	-13.9766	-0.0368
		29				1.7944	0.338	-4.5063	0.0329	0.0419	0.0184	12.896	-0.662	-1.211	0.0329	0.0419	-0.1181	15.95	-14.8444	**0.154**
Uchumi Supermark	40.2	**36**	12.07	17	0.5	6.4638	0.9306	-4.3798	0.0276	0.0379	0.1547	0.1555	-0.0694	-0.2891	0.0276	0.0379	-0.0147	42.75	**0.2862**	-6.9055
		46				0.8192	0.2881	-2.9478	0.0706	0.097	0.0538	3.9252	-0.7119	2.2792	0.0706	0.097	-0.1627	42.75	-4.0692	-0.6752
		56				0.023	0.0141	-0.2386	0.0074	0.0102	0.0027	12.5434	-0.9859	6.1247	0.0074	0.0102	-0.2609	42.75	-13.273	0.7066
		37				5.6231	0.8948	-4.543	0.0377	0.0518	0.1517	0.2562	-0.1052	-0.3386	0.0377	0.0518	-0.0224	42.75	**0.1269**	-6.0062
		38				4.8268	0.8486	-4.6686	0.0486	0.0667	0.1464	0.4014	-0.1514	-0.3506	0.0486	0.0667	-0.0324	42.75	-0.0768	-5.1514
		49				0.3245	0.139	-1.7061	0.0458	0.063	0.0263	6.2548	-0.861	3.8618	0.0458	0.063	-0.2043	42.75	-6.5745	-0.0048
		50				0.2314	0.1052	-1.362	0.0377	0.0517	0.02	7.1031	-0.8948	4.3195	0.0377	0.0517	-0.2154	42.75	-7.4814	**0.1469**
		51				0.1627	0.0782	-1.0657	0.0302	0.0415	0.0149	7.9759	-0.9218	4.7295	0.0302	0.0415	-0.2252	42.75	-8.4127	0.2741

SIMULATION OF OPTION VALUES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JANUARY-JUNE 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.00*	*Value of European call option*	*Value of European put option*
Barclays Bank	82.95	**49**	12.1	36	0.5	36.8761	0.9925	-5.9234	0.001	0.0121	0.2273	0.0564	-0.0075	-0.3554	0.001	0.0121	-0.0034	86	**0.1239**	-37.0564
		59				27.8282	0.9557	-8.1862	0.0044	0.0549	0.2572	0.4229	-0.0443	-1.482	0.0044	0.0549	-0.0205	86	-0.8282	-27.4229
		69				19.6603	0.8616	-10.9162	0.0105	0.1295	0.2591	1.6693	-0.1384	-3.0756	0.0105	0.1295	-0.0657	86	-2.6603	-18.6693
		79				12.9717	0.7109	-12.7693	0.0162	0.2005	0.23	4.395	-0.2891	-3.7924	0.0162	0.2005	-0.1419	86	-5.9717	-11.395
		89				8.0313	0.535	-12.7784	0.0188	0.2331	0.1817	8.869	-0.465	-2.6652	0.0188	0.2331	-0.2372	86	-11.0313	-5.869
		99				4.7068	0.3705	-11.1176	0.0179	0.2216	0.1301	14.9589	-0.6295	0.1318	0.0179	0.2216	-0.3359	86	-17.7068	-1.9589
		109				2.6365	0.2393	-8.6318	0.0147	0.1821	0.0861	22.303	-0.7607	3.754	0.0147	0.1821	-0.427	86	-25.6365	0.697
		54				32.2834	0.9798	-6.9427	0.0023	0.0286	0.245	0.1709	-0.0202	-0.8066	0.0023	0.0286	-0.0092	86	-0.2834	-32.1709
		53				33.1933	0.9832	-6.7198	0.002	0.0245	0.2418	0.1394	-0.0168	-0.6974	0.002	0.0245	-0.0077	86	-0.1933	-33.1394
		52				34.1081	0.9861	-6.5065	0.0017	0.0209	0.2384	0.1127	-0.0139	-0.5977	0.0017	0.0209	-0.0063	86	-0.1081	-34.1127
		51				35.0272	0.9886	-6.3028	0.0014	0.0176	0.2349	0.0904	-0.0114	-0.5076	0.0014	0.0176	-0.0052	86	-0.0272	-35.0904
		50				35.95	0.9907	-6.1085	0.0012	0.0147	0.2311	0.0718	-0.0093	-0.4269	0.0012	0.0147	-0.0042	86	**0.05**	-36.0718
		104				3.5406	0.3001	-9.9205	0.0165	0.204	0.1068	18.4998	-0.6999	1.8971	0.0165	0.204	-0.3828	86	-21.5406	-0.4998
		105				3.3404	0.2872	-9.6668	0.0161	0.1999	0.1024	19.2411	-0.7128	2.2645	0.0161	0.1999	-0.3918	86	-22.3404	-0.2411
		106				3.1503	0.2746	-9.4103	0.0158	0.1956	0.0981	19.9925	-0.7254	2.6346	0.0158	0.1956	-0.4008	86	-23.1503	**0.0075**
City Trust Ltd	22	18	12.1	19	0.5	5.0798	0.9778	-2.1397	0.0179	0.0082	0.0822	0.0256	-0.0222	-0.0943	0.0179	0.0082	-0.0026	20	-3.0798	-2.0256
		28				0.1333	0.1005	-0.7715	0.0596	0.0274	0.0104	4.4935	-0.8995	2.4102	0.0596	0.0274	-0.1214	20	-8.1333	3.5065
		20				3.3379	0.8899	-2.5163	0.0637	0.0293	0.0812	0.1666	-0.1101	-0.2437	0.0637	0.0293	-0.0129	20	-3.3379	-0.1666
		21				2.5689	0.8058	-2.6425	0.093	0.0428	0.0758	0.3391	-0.1942	-0.2563	0.093	0.0428	-0.0231	20	-3.5689	**0.6609**
		22				1.9013	0.6972	-2.6539	0.1181	0.0543	0.0672	0.6128	-0.3028	-0.154	0.1181	0.0543	-0.0364	20	-3.9013	1.3872
		23				1.3506	0.5736	-2.5191	0.1327	0.061	0.0563	1.0036	-0.4264	0.0944	0.1327	0.061	-0.0519	20	-4.3506	1.9964
CFC Bank	11	6	12.1	40	0.5	5.3582	0.9938	-0.7275	0.0057	0.0014	0.0279	0.0069	-0.0062	-0.0457	0.0057	0.0014	-0.0004	9.8	-1.5582	-3.8069
		16				0.2427	0.166	-0.9666	0.0801	0.0194	0.0079	4.3056	-0.834	0.8515	0.0801	0.0194	-0.0674	9.8	-6.4427	**1.8944**
		10				2.1088	0.7555	-1.7256	0.1009	0.0244	0.031	0.5231	-0.2445	-0.5893	0.1009	0.0244	-0.0161	9.8	-2.3088	-0.3231
		11				1.55	0.6386	-1.8263	0.1204	0.0291	0.0274	0.9058	-0.3614	-0.5764	0.1204	0.0291	-0.0244	9.8	-2.75	**0.2942**
Diamond Trust Banl	26	13	12.1	29	0.5	13.7614	0.9999	-1.4786	0.0001	0.0001	0.0612	0.0001	-0.0001	0.0001	0.0001	0.0001	0	20	-6.7614	-7.0001
		23				4.8411	0.8401	-3.3489	0.0456	0.0447	0.085	0.4941	-0.1599	-0.7354	0.0456	0.0447	-0.0233	20	-7.8411	2.5059
		18				9.0829	0.9857	-2.1904	0.0068	0.0068	0.0827	0.0287	-0.0143	-0.1451	0.0068	0.0068	-0.002	20	-7.0829	-2.0287
		19				8.1719	0.973	-2.3996	0.0117	0.0115	0.0856	0.0592	-0.027	-0.2406	0.0117	0.0115	-0.0038	20	-7.1719	-0.973
		20				7.283	0.9532	-2.6341	0.0184	0.018	0.0875	0.1117	-0.0468	-0.3614	0.0184	0.018	-0.0066	20	-7.283	-0.1117
		21				6.4252	0.9248	-2.8828	0.0266	0.0261	0.0881	0.1953	-0.0752	-0.4965	0.0266	0.0261	-0.0107	20	-7.4252	**0.8047**
Housing Finance Cc	10.6	1	12.1	111	0.5	9.6592	0.9997	-0.1211	0.0001	0.0001	0.0047	0.0007	-0.0003	-0.0075	0.0001	0.0001	0	7.05	-3.6092	-6.0507
of Kenya		11				3.322	0.6635	-3.4842	0.0439	0.0274	0.0186	3.0778	-0.3365	-2.2342	0.0439	0.0274	-0.0332	7.05	-7.272	0.8722
		9				4.086	0.7511	-3.1057	0.0381	0.0238	0.0194	1.9589	-0.2489	-2.083	0.0381	0.0238	-0.023	7.05	-6.036	-0.0089
		10				3.6807	0.7066	-3.3231	0.0414	0.0258	0.019	2.4951	-0.2934	-2.1868	0.0414	0.0258	-0.028	7.05	-6.6307	**0.4549**
ICDC Investments	50	33	12.1	27	0.5	18.948	0.9952	-3.8526	0.0015	0.005	0.1541	0.0154	-0.0048	-0.1028	0.0015	0.005	-0.0013	49.5	-2.448	-16.5154
Co Ltd		43				10.0989	0.8852	-5.9737	0.0203	0.0685	0.1708	0.5806	-0.1148	-1.0875	0.0203	0.0685	-0.0316	49.5	-3.5989	-7.0806
		53				3.8508	0.5424	-6.5951	0.0416	0.1403	0.1163	3.7468	-0.4576	-0.5727	0.0416	0.1403	-0.1331	49.5	-7.3508	-0.2468
		63				1.0519	0.2122	-3.9211	0.0304	0.1025	0.0478	10.3623	-0.7878	3.2377	0.0304	0.1025	-0.2488	49.5	-14.5519	3.1377

		54				3.4301	0.5034	-6.432	0.0418	0.141	0.1087	4.2675	-0.4966	-0.2959	0.0418	0.141	-0.1455	49.5	-7.9301	**0.2325**
Jubilee Insurance Co Ltd	25.1	18	12.1	24	0.5	8.1664	0.9918	-2.1145	0.0053	0.004	0.0836	0.0122	-0.0082	-0.0691	0.0053	0.004	-0.0011	22	-4.1664	-4.0122
		28				1.1816	0.4193	2.7919	0.0917	0.0694	0.0467	2.4418	0.5807	0.3897	0.0917	0.0694	0.0851	22	-7.1816	3.5582
		21				5.4662	0.9321	-2.7229	0.0308	0.0233	0.0896	0.1363	-0.0679	-0.3366	0.0308	0.0233	-0.0092	22	-4.4662	-1.1363
		22				4.6368	0.8882	-2.9414	0.0446	0.0338	0.0883	0.2483	-0.1118	-0.4415	0.0446	0.0338	-0.0153	22	-4.6368	-0.2483
		23				3.8654	0.8303	-3.1256	0.0593	0.0449	0.0849	0.4184	-0.1697	-0.5121	0.0593	0.0449	-0.0234	22	-4.8654	**0.5816**
KCB Ltd	21.8	**14**	12.1	34	0.5	8.6466	0.9866	-1.7328	0.0066	0.0053	0.0643	0.0267	-0.0134	-0.142	0.0066	0.0053	-0.0016	28	**5.3534**	-14.0267
		24				1.75	0.4886	-3.1643	0.0761	0.0615	0.0445	2.5445	-0.5114	-0.4372	0.0761	0.0615	-0.0685	28	2.25	-6.5445
		34				0.1476	0.0698	-0.8678	0.0256	0.0206	0.0069	10.3564	-0.9302	2.9957	0.0256	0.0206	-0.1532	28	-6.1476	-4.3564
		27				0.8922	0.302	-2.5148	0.0665	0.0538	0.0285	4.511	-0.698	0.5532	0.0665	0.0538	-0.0986	28	**0.1078**	-5.511
		28				0.702	0.2515	-2.2476	0.0608	0.0491	0.0239	5.2622	-0.7485	0.934	0.0608	0.0491	-0.1079	28	-0.702	-5.2622
		29				0.5487	0.2073	-1.9783	0.0546	0.0441	0.0199	6.0503	-0.7927	1.3171	0.0546	0.0441	-0.1167	28	-1.5487	-5.0503
National Bank Ltd	5	2	12.1	51	0.5	3.1183	0.9981	-0.2371	0.0034	0.0002	0.0094	0.0011	-0.0019	-0.0098	0.0034	0.0002	-0.0001	3.6	-1.5183	-1.6011
		3				2.208	0.9611	-0.4653	0.0467	0.003	0.013	0.0323	-0.0389	-0.1244	0.0467	0.003	-0.0011	3.6	-1.608	-0.6323
		4				1.4252	0.8331	-0.7817	0.1387	0.0088	0.0137	0.1909	-0.1669	-0.3272	0.1387	0.0088	-0.0051	3.6	-1.8252	**0.2091**
																		3.6		
NIC Bank Ltd	27	13	12.1	39	0.5	14.7643	0.9987	-1.5049	0.0006	0.0008	0.061	0.003	-0.0013	-0.0276	0.0006	0.0008	-0.0002	21	-6.7643	-8.003
		23				6.1437	0.8259	-3.863	0.0345	0.049	0.0808	0.7967	-0.1741	-1.2495	0.0345	0.049	-0.0275	21	-8.1437	1.2033
		18				10.1642	0.9662	-2.4815	0.0101	0.0144	0.0796	0.11	-0.0338	-0.4362	0.0101	0.0144	-0.0051	21	-7.1642	-3.11
		19				9.2919	0.9486	-2.7553	0.0142	0.0201	0.0816	0.1792	-0.0514	-0.5963	0.0142	0.0201	-0.0078	21	-7.2919	-2.1792
		20				8.4483	0.9258	-3.043	0.0189	0.0268	0.0827	0.277	-0.0742	-0.7704	0.0189	0.0268	-0.0114	21	-7.4483	-1.277
		21				7.639	0.8976	-3.3326	0.024	0.0341	0.083	0.4092	-0.1024	-0.9464	0.024	0.0341	-0.0159	21	-7.639	-0.4092
		22				6.8693	0.8642	-3.6104	0.0293	0.0416	0.0823	0.5809	-0.1358	-1.1106	0.0293	0.0416	-0.0212	21	-7.8693	**0.4191**
Pan Africa Ins Co	26.5	11	12.1	39	0.5	16.1446	0.9998	-1.2547	0.0001	0.0001	0.0518	0.0004	-0.0002	-0.0048	0.0001	0.0001	0	20	-7.1446	-9.0004
		21				7.1933	0.885	-3.3811	0.0266	0.0364	0.0813	0.4635	-0.115	-0.9948	0.0266	0.0364	-0.0176	20	-8.1933	**0.5365**
		20				7.9879	0.9158	-3.0944	0.0211	0.029	0.0814	0.3166	-0.0842	-0.8218	0.0211	0.029	-0.0127	20	-7.9879	-0.3166
Standard Chartered Bank Ltd	37.5	21	12.1	51	0.5	17.8772	0.9747	-3.0515	0.0044	0.0156	0.0934	0.1474	-0.0253	-0.6652	0.0044	0.0156	-0.0055	48	**9.1228**	-27.1474
		31				10.0183	0.8094	-6.1316	0.0201	0.0721	0.1017	1.7028	-0.1906	-2.609	0.0201	0.0721	-0.0443	48	6.9817	-18.7028
		41				4.9124	0.5399	-7.2189	0.0294	0.1053	0.0767	6.0113	-0.4601	-2.56	0.0294	0.1053	-0.1163	48	2.0876	-13.0113
		51				2.221	0.3068	-5.8697	0.026	0.0931	0.0464	12.7342	-0.6932	-0.0745	0.026	0.0931	-0.1936	48	-5.221	-9.7342
		61				0.9639	0.1583	-3.8676	0.0179	0.0641	0.0249	20.8915	-0.8417	3.0639	0.0179	0.0641	-0.2623	48	-13.9639	-7.8915
		71				0.412	0.0775	-2.2626	0.0107	0.0385	0.0125	29.7538	-0.9225	5.8052	0.0107	0.0385	-0.3217	48	-23.412	-6.7538
		81				0.176	0.0369	-1.237	0.006	0.0214	0.006	38.9322	-0.9631	7.9671	0.006	0.0214	-0.3752	48	-33.176	-5.9322
		44				3.8961	0.4619	-6.991	0.0294	0.1053	0.0671	7.8193	-0.5381	-1.9912	0.0294	0.1053	-0.14	48	**0.1039**	-11.8193
		45				3.6015	0.4373	-6.8727	0.0291	0.1045	0.064	8.4661	-0.5627	-1.7593	0.0291	0.1045	-0.1478	48	-0.6015	-11.4661
		46				3.3271	0.4134	-6.7369	0.0288	0.1033	0.0609	9.1331	-0.5866	-1.5098	0.0288	0.1033	-0.1557	48	-1.3271	-11.1331

SIMULATION OF OPTION VALUES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JANUARY-JUNE 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 30.6.00*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	5.6	2	12.07	42	0.5	3.7172	0.9999	-0.2277	0.0002	0	0.0094	0	-0.0001	-0.0004	0.0002	0	0	4.55	-1.1672	-2.55
		3				2.7799	0.9929	-0.3683	0.0118	0.0008	0.0139	0.0042	-0.0071	-0.0274	0.0118	0.0008	-0.0002	4.55	-1.2299	-1.5542
		4				1.8913	0.9312	-0.6215	0.0797	0.0052	0.0166	0.057	-0.0688	-0.167	0.0797	0.0052	-0.0022	4.55	-1.3413	-0.607
		5				1.1549	0.7683	-0.887	0.1833	0.0121	0.0157	0.2621	-0.2317	-0.3188	0.1833	0.0121	-0.0078	4.55	-1.6049	**0.1879**
Bamburi Cement Ltd	26	**25**	12.07	14	0.5	2.6657	0.8544	-2.9478	0.0888	0.042	0.0977	0.2016	-0.1456	-0.107	0.0888	0.042	-0.0199	29.25	**1.5843**	-4.4516
		35				0.008	0.0096	-0.0949	0.0099	0.0047	0.0012	6.9583	-0.9904	3.8822	0.0099	0.0047	-0.1635	29.25	-5.758	-1.2083
		28				0.8634	0.4644	-2.3757	0.1544	0.0731	0.056	1.2236	-0.5356	0.8059	0.1544	0.0731	-0.0758	29.25	**0.3866**	-2.4736
		29				0.5267	0.3285	-1.8979	0.1405	0.0665	0.0401	1.8283	-0.6715	1.3974	0.1405	0.0665	-0.0964	29.25	-0.2767	-2.0783
		30				0.3023	0.2158	-1.3945	0.1138	0.0538	0.0265	2.5454	-0.7842	2.0145	0.1138	0.0538	-0.1147	29.25	-1.0523	-1.7954
BAT Ltd	57	26	12.07	52	0.5	32.5724	0.9935	-3.287	0.0009	0.0074	0.1203	0.0498	-0.0065	-0.3326	0.0009	0.0074	-0.0021	57	-1.5724	-31.0498
		36				23.6762	0.9449	-5.9766	0.0053	0.0449	0.1509	0.5679	-0.0551	-1.8859	0.0053	0.0449	-0.0185	57	-2.6762	-21.5679
		46				16.0783	0.8241	-9.1493	0.0123	0.1042	0.1545	2.3843	-0.1759	-3.9223	0.0123	0.1042	-0.0621	57	-5.0783	-13.3843
		56				10.3196	0.654	-10.9842	0.0176	0.1487	0.1348	6.04	-0.346	-4.6209	0.0176	0.1487	-0.1288	57	-9.3196	-7.04
		66				6.3567	0.4798	-10.8841	0.019	0.1606	0.105	11.4914	-0.5202	-3.3844	0.019	0.1606	-0.2057	57	-15.3567	-2.4914
		76				3.8093	0.332	-9.4327	0.0173	0.1463	0.0756	18.3583	-0.668	-0.7967	0.0173	0.1463	-0.2822	57	-22.8093	0.6417
		71				4.9342	0.4016	-10.2725	0.0185	0.1559	0.0898	14.7761	-0.5984	-2.2047	0.0185	0.1559	-0.2444	57	-18.9342	-0.7761
		72				4.6872	0.3869	-10.1193	0.0183	0.1543	0.0868	15.4705	-0.6131	-1.9378	0.0183	0.1543	-0.2521	57	-19.6872	-0.4705
		73				4.4516	0.3726	-9.9578	0.0181	0.1525	0.0839	16.1764	-0.6274	-1.6628	0.0181	0.1525	-0.2597	57	-20.4516	-0.1764
		74				4.2271	0.3587	-9.7891	0.0178	0.1506	0.0811	16.8933	-0.6413	-1.3804	0.0178	0.1506	-0.2672	57	-21.2271	**0.1067**
BOC Gases Ltd	64	37	12.07	30	0.5	29.1729	0.9985	-4.2573	0.0004	0.0022	0.1737	0.006	-0.0015	-0.053	0.0004	0.0022	-0.0005	47.25	-18.9229	-10.256
		47				19.939	0.9676	-6.0532	0.0053	0.0329	0.2099	0.1864	-0.0324	-0.7126	0.0053	0.0329	-0.0113	47.25	-19.689	-0.4364
		57				11.7491	0.8255	-8.4519	0.019	0.1164	0.2054	1.4109	-0.1745	-1.975	0.019	0.1164	-0.0629	47.25	-21.4991	8.3391
		48				19.0509	0.9597	-6.2918	0.0064	0.0393	0.2118	0.2398	-0.0403	-0.8375	0.0064	0.0393	-0.0141	47.25	-19.8009	**0.5102**
Carbacid Investment	56	27	12.07	40	0.5	30.5895	0.9983	-3.1411	0.0003	0.0021	0.1266	0.0083	-0.0017	-0.0731	0.0003	0.0021	-0.0005	50	-7.5895	-23.0083
		37				21.4057	0.9656	-5.1491	0.0048	0.0301	0.1633	0.2388	-0.0344	-0.9448	0.0048	0.0301	-0.0108	50	-8.4057	-13.2388
		47				13.3398	0.835	-7.9654	0.0157	0.0983	0.1671	1.5872	-0.165	-2.6247	0.0157	0.0983	-0.0541	50	-10.3398	-4.5872
		57				7.405	0.6149	-9.3175	0.0241	0.1514	0.1352	5.0668	-0.3851	-2.8405	0.0241	0.1514	-0.1332	50	-14.405	1.9332
		52				10.0735	0.7313	-8.9516	0.0208	0.1306	0.1544	3.0281	-0.2687	-3.0428	0.0208	0.1306	-0.0904	50	-12.0735	-1.0281
		53				9.4917	0.7087	-9.0779	0.0217	0.1358	0.151	3.3877	-0.2913	-3.0554	0.0217	0.1358	-0.0985	50	-12.4917	-0.3877
		54				8.9341	0.6856	-9.1779	0.0224	0.1406	0.1473	3.7716	-0.3144	-3.0418	0.0224	0.1406	-0.1069	50	-12.9341	**0.2284**
Crown Berger Ltd	11.05	**6**	12.07	34	0.5	5.4029	0.9982	-0.6945	0.0022	0.0005	0.0281	0.0015	-0.0018	-0.0127	0.0022	0.0005	-0.0001	12.5	**1.0971**	-6.5015
		16				0.1439	0.1213	-0.68	0.0759	0.0158	0.006	4.1569	-0.8787	1.1381	0.0759	0.0158	-0.0693	12.5	-3.6439	-0.6569
		11				1.4081	0.6518	-1.6815	0.1392	0.0289	0.029	0.7138	-0.3482	-0.4316	0.1392	0.0289	-0.0228	12.5	**0.0919**	-2.2138
		12				0.95	0.5112	-1.6266	0.1501	0.0312	0.0235	1.1972	-0.4888	-0.263	0.1501	0.0312	-0.033	12.5	-0.45	-1.6972
Dunlop Kenya Ltd	9.8	6	12.07	22	0.5	4.1514	0.9999	-0.6825	0.0004	0	0.0282	0.0001	-0.0001	-0.0007	0.0004	0	0	7.5	-2.6514	-1.5001
		7				3.2121	0.9957	-0.8093	0.0083	0.0009	0.0327	0.0021	-0.0043	-0.0139	0.0083	0.0009	-0.0002	7.5	-2.7121	-0.5021
		8				2.2934	0.9617	-0.9876	0.0546	0.0058	0.0357	0.0248	-0.0383	-0.0786	0.0546	0.0058	-0.002	7.5	-2.7934	**0.4752**
E A Cables Ltd	12.95	5	12.07	62	0.5	8.2548	0.9943	-0.6506	0.0029	0.0015	0.0231	0.012	-0.0057	-0.0824	0.0029	0.0015	-0.0004	8	-5.2548	-3.012

		15				1.8077	0.5086	-2.8413	0.0703	0.0365	0.0239	2.9792	-0.4914	-1.1368	0.0703	0.0365	-0.0467	8	-8.8077	4.0208
									-0.233										
		10				1.8077	0.5086	-2.8413	0.0703	0.0365	0.0239	2.9792	-0.4914	-1.1368	0.0703	0.0365	-0.0467	8	-3.8077	-0.9792
		11				3.5709	0.767	-2.5042	0.0539	0.028	0.0318	0.9767	-0.233	-1.2542	0.0539	0.028	-0.02	8	-6.5709	**2.0233**
E A Packaging Ltd	12.5	2	12.07	86	0.5	10.6179	0.9997	-0.2355	0.0002	0.0001	0.0094	0.0007	-0.0003	-0.0083	0.0002	0.0001	0	13.2	0.5821	-11.2007
		12				3.4822	0.681	-3.322	0.047	0.0316	0.0252	2.2794	-0.319	-1.9584	0.047	0.0316	-0.0313	13.2	-2.2822	-3.4794
		22				1.0842	0.2993	-2.961	0.0457	0.0307	0.0133	9.2958	-0.7007	-0.4611	0.0457	0.0307	-0.0903	13.2	-9.8842	-0.4958
		28				0.5678	0.178	-2.1809	0.0343	0.023	0.0083	14.4279	-0.822	1.0008	0.0343	0.023	-0.1235	13.2	-15.3678	0.3721
		6				7.0738	0.9463	-1.4034	0.0144	0.0096	0.0238	0.2224	-0.0537	-0.7216	0.0144	0.0096	-0.0045	13.2	**0.1262**	-7.4224
		7				6.3133	0.9126	-1.8229	0.0209	0.014	0.0255	0.4033	-0.0874	-1.0274	0.0209	0.014	-0.0075	13.2	-0.1133	-6.6033
EA Portland Cement	11.2	**8**	12.07	24	0.5	3.6736	0.9923	-0.9383	0.0111	0.0017	0.0372	0.0051	-0.0077	-0.0292	0.0111	0.0017	-0.0005	12.4	**0.7264**	-4.4051
		15				0.0841	0.1001	-0.459	0.0924	0.0139	0.0052	3.0057	-0.8999	1.2455	0.0924	0.0139	-0.0654	12.4	-2.6841	-0.4057
		11				1.2271	0.7077	-1.4616	0.1808	0.0272	0.0335	0.3828	-0.2923	-0.2117	0.1808	0.0272	-0.0183	12.4	**0.1729**	-1.7828
		12				0.713	0.5135	-1.366	0.2098	0.0316	0.0252	0.8102	-0.4865	-0.0024	0.2098	0.0316	-0.0313	12.4	-0.313	-1.2102
Firestone EA Ltd	15.6	9	12.07	30	0.5	7.1285	0.9986	-1.0352	0.0014	0.0005	0.0422	0.0014	-0.0014	-0.0126	0.0014	0.0005	-0.0001	12.95	-3.1785	-3.9514
		20				0.3728	0.2175	-1.3379	0.0889	0.0324	0.0151	3.6015	-0.7825	0.9347	0.0889	0.0324	-0.079	12.95	-7.4228	3.4485
		13				3.5449	0.8944	-1.8605	0.0552	0.0201	0.052	0.1836	-0.1056	-0.3833	0.0552	0.0201	-0.0092	12.95	-3.5949	-0.1336
		14				2.7878	0.8161	-2.0802	0.0804	0.0293	0.0497	0.3679	-0.1839	-0.4894	0.0804	0.0293	-0.0162	12.95	-3.8378	**0.6821**
EABL	65.95	58	12.07	17	0.5	11.5261	0.9485	-6.996	0.0133	0.0492	0.2551	0.1794	-0.0515	-0.4054	0.0133	0.0492	-0.0179	65.5	-4.0261	-7.6794
		68				4.1754	0.6208	-7.4541	0.048	0.1775	0.1838	2.243	-0.3792	0.2728	0.048	0.1775	-0.1363	65.5	-6.6754	**0.257**
		67				4.7385	0.6667	-7.6174	0.0459	0.1696	0.1961	1.8647	-0.3333	-0.0041	0.0459	0.1696	-0.1192	65.5	-6.2385	-0.3647
Kenya National Mills	9.5	**2**	12.07	80	0.5	7.6186	0.9992	-0.2414	0.0005	0.0002	0.0094	0.0014	-0.0008	-0.0142	0.0005	0.0002	0	10.5	**0.8814**	-8.5014
		12				1.5218	0.4906	-2.5222	0.0742	0.0268	0.0157	3.319	-0.5094	-1.1587	0.0742	0.0268	-0.0408	10.5	-3.0218	-1.819
		21				0.3466	0.1556	-1.4204	0.0445	0.016	0.0057	10.6167	-0.8444	0.9659	0.0445	0.016	-0.0932	10.5	-10.8466	-0.1167
		7				3.5942	0.8237	-1.9027	0.0482	0.0174	0.0212	0.6842	-0.1763	-1.1072	0.0482	0.0174	-0.0118	10.5	-0.0942	-4.1842
		6				4.2435	0.8853	-1.5441	0.0361	0.013	0.0208	0.3921	-0.1147	-0.8624	0.0361	0.013	-0.0074	10.5	**0.2565**	-4.8921
Kenya Oil Co Ltd	67.75	54	12.07	23	0.5	17.0606	0.9676	-6.6518	0.0066	0.0347	0.2425	0.148	-0.0324	-0.5157	0.0066	0.0347	-0.0117	82	10.9394	-28.148
		64				8.9275	0.7889	-8.5589	0.0262	0.1385	0.2226	1.4294	-0.2111	-1.2865	0.0262	0.1385	-0.0787	82	9.0725	-19.4294
		74				3.5601	0.4641	-7.7431	0.0361	0.1903	0.1394	5.4763	-0.5359	0.6656	0.0361	0.1903	-0.2089	82	4.4399	-13.4763
		84				1.0859	0.1923	-4.4532	0.0248	0.131	0.0597	12.4164	-0.8077	5.0918	0.0248	0.131	-0.3357	82	-3.0859	-10.4164
		79				2.0289	0.3113	-6.1949	0.0321	0.1693	0.0953	8.6523	-0.6887	2.7819	0.0321	0.1693	-0.2766	82	0.9711	-11.6523
		80				1.7992	0.2845	-5.8469	0.0308	0.1625	0.0874	9.364	-0.7155	3.2436	0.0308	0.1625	-0.2892	82	**0.2008**	-11.364
		81				1.5915	0.2592	-5.4953	0.0294	0.1551	0.0798	10.0977	-0.7408	3.7088	0.0294	0.1551	-0.3014	82	-0.5915	-11.0977
KPLC	92.2	35	12.07	46	0.5	59.2535	0.9996	-4.0191	0.0001	0.001	0.1645	0.0038	-0.0004	-0.042	0.0001	0.001	-0.0002	51.5	-42.7535	-16.5038
		45				49.8917	0.9947	-5.5066	0.0005	0.01	0.2091	0.0562	-0.0053	-0.3932	0.0005	0.01	-0.0027	51.5	-43.3917	-6.5562
		55				40.7602	0.9736	-7.7498	0.002	0.0399	0.245	0.3392	-0.0264	-1.5	0.002	0.0399	-0.0139	51.5	-44.2602	3.1608
		50				45.2785	0.9871	-6.5166	0.0011	0.0217	0.2287	0.1502	-0.0129	-0.835	0.0011	0.0217	-0.0067	51.5	-43.7785	-1.6502
		51				44.3658	0.9849	-6.7454	0.0013	0.0248	0.2322	0.179	-0.0151	-0.9502	0.0013	0.0248	-0.0078	51.5	-43.8658	-0.679
		52				43.4572	0.9825	-6.9833	0.0014	0.0281	0.2357	0.2118	-0.0175	-1.0745	0.0014	0.0281	-0.0091	51.5	-43.9572	**0.2882**

Total Kenya Ltd	48.25	**28**	12.07	43	0.5	21.984	0.9838	-3.6686	0.0028	0.0138	0.1274	0.0942	-0.0162	-0.4869	0.0028	0.0138	-0.0044	51	**1.016**	-23.0942
		38				13.5527	0.872	-6.5128	0.0143	0.0714	0.1426	1.0773	-0.128	-2.1948	0.0143	0.0714	-0.0363	51	-0.5527	-14.0773
		48				7.3055	0.6434	-8.3357	0.0254	0.1272	0.1187	4.2444	-0.3566	-2.8814	0.0254	0.1272	-0.1072	51	-4.3055	-7.2444
		58				3.5401	0.3994	-7.5648	0.0263	0.1318	0.0787	9.8933	-0.6006	-0.9742	0.0263	0.1318	-0.1944	51	-10.5401	-2.8933
		68				1.5945	0.2183	-5.4035	0.0201	0.1006	0.0447	17.3621	-0.7817	2.3234	0.0201	0.1006	-0.2754	51	-18.5945	-0.3621
		78				0.686	0.1095	-3.3046	0.0128	0.0639	0.023	25.8679	-0.8905	5.5586	0.0128	0.0639	-0.3442	51	-27.686	1.1321
		33				17.5676	0.9452	-5.0117	0.0076	0.0378	0.1402	0.3849	-0.0548	-1.2619	0.0076	0.0378	-0.0151	51	0.4324	-18.3849
		34				16.7263	0.9334	-5.3123	0.0088	0.0441	0.1416	0.4851	-0.0666	-1.4489	0.0088	0.0441	-0.0185	51	0.2737	-17.4851
		35				15.9027	0.9202	-5.6165	0.0101	0.0506	0.1425	0.6029	-0.0798	-1.6395	0.0101	0.0506	-0.0223	51	**0.0973**	-16.6029
		36				15.0984	0.9055	-5.9206	0.0115	0.0574	0.143	0.74	-0.0945	-1.8299	0.0115	0.0574	-0.0265	51	-0.0984	-15.74
		70				1.3509	0.1913	-4.948	0.0186	0.093	0.0394	19.0014	-0.8087	3.0061	0.0186	0.093	-0.2901	51	-20.3509	-0.0014
		71				1.2427	0.1788	-4.7248	0.0178	0.0892	0.0369	19.8346	-0.8212	3.343	0.0178	0.0892	-0.2973	51	-21.2427	**0.1654**
		72				1.1427	0.167	-4.5057	0.0171	0.0854	0.0346	20.676	-0.833	3.6758	0.0171	0.0854	-0.3043	51	-22.1427	0.324
		73				1.0504	0.1559	-4.2912	0.0163	0.0816	0.0324	21.5251	-0.8441	4.0039	0.0163	0.0816	-0.3113	51	-23.0504	0.4749
Unga Group Ltd	22.85	6	12.07	73	0.5	17.2073	0.9985	-0.7348	0.0004	0.0008	0.028	0.0059	-0.0015	-0.0531	0.0004	0.0008	-0.0002	15.4	-7.8073	-9.4059
		16				8.9013	0.8566	-3.9559	0.0192	0.0365	0.0534	1.1143	-0.1434	-2.1378	0.0192	0.0365	-0.0219	15.4	-9.5013	-0.5143
		26				4.0476	0.5497	-5.6964	0.0336	0.064	0.0426	5.6749	-0.4503	-2.742	0.0336	0.064	-0.0798	15.4	-14.6476	4.9251
		17				8.2538	0.8284	-4.291	0.0216	0.0411	0.0534	1.4082	-0.1716	-2.3593	0.0216	0.0411	-0.0266	15.4	-9.8538	**0.1918**

SIMULATION OF OPTION VALUES USING BOPSCOL
AGRICULTURAL SECTOR-JULY-DECEMBER 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.00*	*Value of European call option*	*Value of European put option*
Brooke Bond	74	48	12.07	28	0.5	28.8346	0.9952	-5.6128	0.001	0.0073	0.2241	0.0235	-0.0048	-0.1585	0.001	0.0073	-0.0019	97	20.1654	-49.0235
		58				19.7357	0.9489	-7.6308	0.0072	0.0549	0.2524	0.339	-0.0511	-1.0402	0.0072	0.0549	-0.0206	97	19.2643	-39.339
		68				11.8213	0.797	-9.8304	0.0193	0.1478	0.2358	1.8389	-0.203	-2.1035	0.0193	0.1478	-0.0843	97	17.1787	-30.8389
		78				6.1015	0.5548	-10.009	0.027	0.2068	0.1748	5.5334	-0.4452	-1.1458	0.027	0.2068	-0.1924	97	12.8985	-24.5334
		88				2.7361	0.3187	-7.7468	0.0244	0.1868	0.1042	11.5824	-0.6813	2.2528	0.0244	0.1868	-0.31	97	6.2639	-20.5824
		98				1.0884	0.1551	-4.7457	0.0163	0.1247	0.0519	19.349	-0.8449	6.3901	0.0163	0.1247	-0.4094	97	-2.0884	-18.349
		93				1.7491	0.2265	-6.2223	0.0205	0.1575	0.0751	15.3026	-0.7735	4.3454	0.0205	0.1575	-0.3627	97	2.2509	-19.3026
		94				1.5941	0.2106	-5.9174	0.0197	0.151	0.0699	16.089	-0.7894	4.764	0.0197	0.151	-0.3725	97	1.4059	-19.089
		95				1.4512	0.1955	-5.616	0.0188	0.1445	0.0651	16.8876	-0.8045	5.1789	0.0188	0.1445	-0.3821	97	**0.5488**	-18.8876
		96				1.3199	0.1812	-5.3196	0.018	0.1379	0.0604	17.6976	-0.8188	5.589	0.018	0.1379	-0.3914	97	-0.3199	-18.6976
Eaagads Ltd	25	17	12.07	21	0.5	8.9967	0.999	-1.9414	0.0009	0.0006	0.0799	0.0011	-0.001	-0.0097	0.0009	0.0006	-0.0001	20.5	-5.4967	-3.5011
		27				1.292	0.485	-2.7875	0.1074	0.0705	0.0542	1.7107	-0.515	0.2806	0.1074	0.0705	-0.0729	20.5	-7.792	4.7893
		22				4.453	0.9101	-2.811	0.0437	0.0287	0.0915	0.1645	-0.0899	-0.3112	0.0437	0.0287	-0.0121	20.5	-5.953	1.3355
		21				5.31	0.951	-2.6054	0.0273	0.0179	0.0923	0.0801	-0.049	-0.2192	0.0273	0.0179	-0.0065	20.5	-5.81	**0.4199**
		20				6.206	0.9763	-2.4042	0.015	0.0099	0.091	0.0347	-0.0237	-0.1316	0.015	0.0099	-0.0031	20.5	-5.706	-0.5347
George Williamson	75	41	12.07	43	0.5	36.4839	0.9903	-5.1541	0.0011	0.0138	0.1889	0.0827	-0.0097	-0.4952	0.0011	0.0138	-0.0041	97	19.5161	-56.0827
		51				27.5585	0.9473	-7.7025	0.0047	0.0571	0.2174	0.5717	-0.0527	-1.9073	0.0047	0.0571	-0.0226	97	18.4415	-46.5717
		61				19.644	0.8485	-10.6623	0.0103	0.1245	0.22	2.0715	-0.1515	-3.7308	0.0103	0.1245	-0.0672	97	16.356	-38.0715
		71				13.2507	0.7022	-12.6597	0.0152	0.1838	0.1971	5.0926	-0.2978	-4.5918	0.0152	0.1838	-0.1371	97	12.7493	-31.0926
		81				8.5239	0.5388	-12.9031	0.0174	0.2106	0.1594	9.7802	-0.4612	-3.699	0.0174	0.2106	-0.2219	97	7.4761	-25.7802
		91				5.2778	0.3876	-11.6065	0.0168	0.2031	0.119	15.9484	-0.6124	-1.266	0.0168	0.2031	-0.3094	97	**0.7222**	-21.9484
		101				3.1731	0.2649	-9.4826	0.0144	0.1737	0.0835	23.258	-0.7351	1.9942	0.0144	0.1737	-0.392	97	-7.1731	-19.258
		92				5.0219	0.374	-11.4186	0.0166	0.2009	0.1151	16.634	-0.626	-0.9646	0.0166	0.2009	-0.3179	97	-0.0219	-21.634
Kakuzi Ltd	66.5	35	12.07	29	0.5	33.5505	0.9998	-3.9861	0.0001	0.0004	0.1647	0.0008	-0.0002	-0.009	0.0001	0.0004	-0.0001	55	-13.5505	-20.0008
		45				24.1886	0.9893	-5.4063	0.0021	0.0133	0.208	0.0531	-0.0107	-0.2929	0.0021	0.0133	-0.0038	55	-14.1886	-10.0531
		55				15.3663	0.907	-7.6939	0.0122	0.0782	0.2248	0.6453	-0.093	-1.4442	0.0122	0.0782	-0.0341	55	-15.3663	-0.6453
		65				8.2886	0.6943	-9.3539	0.0257	0.1649	0.1894	2.9819	-0.3057	-1.9678	0.0257	0.1649	-0.1166	55	-18.2886	7.0181
		56				14.5582	0.8916	-7.9369	0.0136	0.0875	0.2237	0.7785	-0.1084	-1.5736	0.0136	0.0875	-0.0399	55	-15.5582	**0.2215**
Kapchorua Tea Co	150	151	12.07	0	0.5	7.8433	1	-17.1583	0	0	0.7108	0	0	0	0	0	0	150	-8.8433	**1**
Limuru Tea Co	650	678	12.07	0	0.5	11.7071	1	-77.042	0	0	3.1915	0	0	0	0	0	0	650	-39.7071	28
Rea Vipingo Ltd	3.85	2	12.07	22	0.5	1.9671	1	-0.2273	0	0	0.0094	0	0	0	0	0	0	3.1	-0.8671	-1.1
		3				1.0301	0.9807	-0.3595	0.0783	0.0013	0.0137	0.0044	-0.0193	-0.0186	0.0783	0.0013	-0.0004	3.1	-0.9301	-0.1044
		4				0.2806	0.5871	-0.4722	0.6502	0.0106	0.0099	0.1963	-0.4129	-0.0176	0.6502	0.0106	-0.0089	3.1	-1.1806	**0.7037**
Sasini Tea & Coffe	35	23	12.07	30	0.5	13.3707	0.9911	-2.7518	0.0032	0.006	0.1066	0.0237	-0.0089	-0.1382	0.0032	0.006	-0.0017	34	-2.3707	-11.0237
		33				5.1837	0.7479	-4.9037	0.043	0.079	0.105	1.251	-0.2521	-1.1538	0.043	0.079	-0.0504	34	-4.1837	-2.251
		43				1.1647	0.281	-3.5502	0.0454	0.0835	0.0434	6.6464	-0.719	1.3359	0.0454	0.0835	-0.1591	34	-10.1647	2.3536
		38				2.6177	0.5012	-4.7631	0.0537	0.0987	0.0746	3.3923	-0.4988	-0.4451	0.0537	0.0987	-0.1043	34	-6.6177	0.6077
		37				3.0336	0.5512	-4.8998	0.0533	0.0979	0.0813	2.8667	-0.4488	-0.6955	0.0533	0.0979	-0.0929	34	-6.0336	**0.1333**
		36				3.4971	0.6017	-4.985	0.052	0.0955	0.0878	2.3887	-0.3983	-0.8943	0.052	0.0955	-0.0816	34	-5.4971	-0.3887

SIMULATION OF OPTION VALUES USING BOPSCOL

COMMERCIAL AND SERVICES SECTOR-JULY-DECEMBER 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.00*	*Value of European call option*	*Value of European put option*
A Baumann & Co	13.8	9	12.07	22	0.5	5.3275	0.9993	-1.0264	0.0011	0.0002	0.0423	0.0004	-0.0007	-0.0038	0.0011	0.0002	0	9.5	-4.8275	-0.5004
		16				0.401	0.3138	-1.2356	0.1652	0.0346	0.0196	1.664	-0.6862	0.5825	0.1652	0.0346	-0.0557	9.5	-6.901	4.836
		10				4.3897	0.9944	-1.1608	0.0075	0.0016	0.0467	0.004	-0.0056	-0.0245	0.0075	0.0016	-0.0004	9.5	-4.8897	**0.496**
CMC Holdings Ltd	16.8	9	12.07	27	0.5	8.3272	0.9999	-1.0239	0.0001	0.0001	0.0424	0.0001	-0.0001	-0.0012	0.0001	0.0001	0	15.25	-2.0772	-6.2501
		19				0.8456	0.4079	-1.9703	0.121	0.0461	0.03	1.9329	-0.5921	0.1887	0.121	0.0461	-0.0594	15.25	-4.5956	1.8171
		18				1.2116	0.52	-2.1862	0.1242	0.0473	0.0376	1.3574	-0.48	-0.1408	0.1242	0.0473	-0.0471	15.25	-3.9616	1.3926
		17				1.6851	0.6367	-2.2914	0.117	0.0446	0.0451	0.8895	-0.3633	-0.3596	0.117	0.0446	-0.035	15.25	-3.4351	0.8605
		16				2.272	0.7477	-2.2661	0.0996	0.0379	0.0514	0.535	-0.2523	-0.448	0.0996	0.0379	-0.0239	15.25	-3.022	**0.215**
		15				2.9678	0.8426	-2.1225	0.0751	0.0286	0.0559	0.2893	-0.1574	-0.418	0.0751	0.0286	-0.0147	15.25	-2.7178	-0.5393
Car & General	10.05	2	12.07	94	0.5	8.1723	0.9978	-0.2696	0.001	0.0005	0.0093	0.0052	-0.0022	-0.0424	0.001	0.0005	-0.0001	10	-0.1723	-8.0052
		12				2.1968	0.5621	-3.0493	0.059	0.028	0.0173	3.444	-0.4379	-1.6857	0.059	0.028	-0.0392	10	-4.1968	-1.444
		22				0.6501	0.225	-2.1976	0.0449	0.0213	0.0081	11.3117	-0.775	0.3023	0.0449	0.0213	-0.0955	10	-12.6501	0.6883
		17				1.1675	0.3566	-2.7824	0.0558	0.0265	0.0121	7.1219	-0.6434	-0.8506	0.0558	0.0265	-0.0679	10	-8.1675	-0.1219
		18				1.0347	0.325	-2.6737	0.0539	0.0256	0.0112	7.9305	-0.675	-0.6284	0.0539	0.0256	-0.0736	10	-9.0347	**0.0695**
Express Kenya Ltd	19.05	15	12.07	13	0.5	4.9287	0.9995	-1.7063	0.001	0.0002	0.0706	0.0002	-0.0005	-0.0019	0.001	0.0002	0	17.9	-2.0287	-2.9002
		21				0.4086	0.3603	-1.4344	0.2137	0.0504	0.0323	1.1288	-0.6397	0.9518	0.2137	0.0504	-0.0666	17.9	-3.5086	1.9712
		20				0.8106	0.5687	-1.898	0.2244	0.0529	0.0501	0.5893	-0.4313	0.3746	0.2244	0.0529	-0.044	17.9	-2.9106	1.5107
		19				1.4112	0.7676	-2.1295	0.1744	0.0411	0.0661	0.2485	-0.2324	0.0295	0.1744	0.0411	-0.0234	17.9	-2.5112	0.8515
		18				2.1837	0.9065	-2.1133	0.0954	0.0225	0.0754	0.0795	-0.0935	-0.0679	0.0954	0.0225	-0.0093	17.9	-2.2837	**0.0205**
		17				3.0636	0.9739	-1.9757	0.0346	0.0082	0.0774	0.018	-0.0261	-0.044	0.0346	0.0082	-0.0026	17.9	-2.1636	-0.918
Kenya Airways	8	7	12.07	25	0.5	1.4984	0.882	-0.9504	0.1398	0.0112	0.0278	0.0884	-0.118	-0.1549	0.1398	0.0112	-0.0052	9	0.5016	-2.0884
		8				0.8127	0.6663	-1.0597	0.2572	0.0206	0.0226	0.3442	-0.3337	-0.1507	0.2572	0.0206	-0.0151	9	0.1873	-1.3442
		9				0.3739	0.4065	-0.896	0.2743	0.0219	0.0144	0.8468	-0.5935	0.1266	0.2743	0.0219	-0.028	9	-0.3739	-0.8468
		10				0.1479	0.2026	-0.5767	0.1995	0.016	0.0074	1.5623	-0.7974	0.5596	0.1995	0.016	-0.0397	9	-1.1479	-0.5623
Marshalls EA Ltd	19.3	13	12.07	20	0.5	7.0617	0.9995	-1.4808	0.0006	0.0002	0.0611	0.0004	-0.0005	-0.0036	0.0006	0.0002	0	18.6	-1.4617	-5.6004
		23				0.3389	0.2288	-1.3185	0.1109	0.0413	0.0204	2.6919	-0.7712	1.295	0.1109	0.0413	-0.0879	18.6	-4.7389	1.7081
		22				0.5593	0.3342	-1.7044	0.1333	0.0497	0.0295	1.9709	-0.6658	0.7955	0.1333	0.0497	-0.0741	18.6	-3.9593	1.4291
		21				0.882	0.4604	-2.0495	0.1454	0.0542	0.04	1.3522	-0.5396	0.3367	0.1454	0.0542	-0.0588	18.6	-3.282	1.0478
		20				1.3267	0.597	-2.2871	0.1418	0.0528	0.051	0.8554	-0.403	-0.0145	0.1418	0.0528	-0.0432	18.6	-2.7267	**0.5446**
		19				1.9021	0.7285	-2.3724	0.1215	0.0453	0.0608	0.4893	-0.2715	-0.2134	0.1215	0.0453	-0.0286	18.6	-2.3021	-0.0893
Nation Media Grou	75	52	12.07	17	0.5	26.0457	0.9998	-5.9127	0.0001	0.0003	0.2447	0.0003	-0.0002	-0.0039	0.0001	0.0003	-0.0001	69	-9.0457	-17.0003
		62				16.6845	0.9841	-7.2542	0.0044	0.0212	0.2856	0.0535	-0.0159	-0.2091	0.0044	0.0212	-0.0062	69	-9.6845	-7.0535
		72				8.1724	0.8164	-8.7992	0.0295	0.1409	0.2653	0.9558	-0.1836	-0.6178	0.0295	0.1409	-0.0736	69	-11.1724	2.0442
		67				12.2007	0.9333	-8.1425	0.0144	0.0686	0.289	0.2768	-0.0667	-0.5292	0.0144	0.0686	-0.0264	69	-10.2007	-2.2768
		68				11.3476	0.9158	-8.3137	0.0171	0.082	0.2867	0.3652	-0.0842	-0.5868	0.0171	0.082	-0.0334	69	-10.3476	-1.3652
		69				10.5153	0.8954	-8.4712	0.0201	0.0962	0.2832	0.4743	-0.1046	-0.6307	0.0201	0.0962	-0.0416	69	-10.5153	-0.4743
		70				9.7068	0.872	-8.6089	0.0232	0.111	0.2785	0.6072	-0.128	-0.6547	0.0232	0.111	-0.051	69	-10.7068	**0.3928**

Pearl Drycleaners	2.4	1	12.07	26	0.5	1.4586	1	-0.1136	0	0	0.0047	0	0	0	0	0	0	2.05	-0.4086	-1.05
		2				0.5341	0.921	-0.2673	0.3337	0.0025	0.0084	0.017	-0.079	-0.04	0.3337	0.0025	-0.001	2.05	-0.4841	-0.067
		3				0.0492	0.2137	-0.1844	0.6599	0.0049	0.0023	0.4735	-0.7863	0.1564	0.6599	0.0049	-0.0118	2.05	-0.9992	**0.4765**
Standard Newspap	6.1	1	12.07	110	0.5	5.1633	0.9974	-0.1496	0.0017	0.0003	0.0046	0.0047	-0.0026	-0.036	0.0017	0.0003	-0.0001	15.8	9.6367	-14.7974
		11				0.8752	0.3853	-1.9922	0.0806	0.0165	0.0074	5.131	-0.6147	-0.7422	0.0806	0.0165	-0.0444	15.8	3.9248	-4.1853
		21				0.2307	0.1307	-1.0761	0.0448	0.0092	0.0028	13.9009	-0.8693	1.3101	0.0448	0.0092	-0.096	15.8	-5.4307	6.0693
		16				0.4296	0.2197	-1.5136	0.0624	0.0128	0.0046	9.3926	-0.7803	0.3045	0.0624	0.0128	-0.0708	15.8	-0.6296	**0.9803**
		15				0.4914	0.245	-1.6127	0.0663	0.0136	0.005	8.5129	-0.755	0.0918	0.0663	0.0136	-0.0656	15.8	0.3086	-0.045
TPS Serena	15.95	3	12.07	97	0.5	13.1338	0.9979	-0.4076	0.0006	0.0007	0.0139	0.0082	-0.0021	-0.0667	0.0006	0.0007	-0.0002	7.15	-8.9838	-4.1582
		13				5.9039	0.767	-4.1098	0.028	0.0345	0.0317	2.1926	-0.233	-2.6326	0.028	0.0345	-0.0295	7.15	-11.7539	3.6574
		8				8.9209	0.9246	-2.2577	0.013	0.016	0.0291	0.5024	-0.0754	-1.3487	0.013	0.016	-0.0085	7.15	-9.7709	**0.3476**
		7				9.6749	0.9486	-1.8115	0.0096	0.0119	0.0273	0.3149	-0.0514	-1.0161	0.0096	0.0119	-0.0057	7.15	-9.5249	-0.4649
Uchumi Supermark	42.75	39	12.07	17	0.5	6.2668	0.9076	-4.7778	0.0322	0.0501	0.1627	0.2328	-0.0924	-0.3461	0.0322	0.0501	-0.0209	49	3.7332	-10.2328
		49				0.8521	0.2833	-3.0989	0.0659	0.1023	0.0563	4.2324	-0.7167	2.469	0.0659	0.1023	-0.1744	49	-0.8521	-4.2324
		48				1.1081	0.344	-3.5329	0.0716	0.1113	0.068	3.547	-0.656	1.9214	0.0716	0.1113	-0.1579	49	-0.1081	-4.547
		47				1.4209	0.4105	-3.9449	0.0757	0.1175	0.0806	2.9183	-0.5895	1.3958	0.0757	0.1175	-0.1406	49	**0.5791**	-4.9183

SIMULATION OF OPTION PRICES USING BOPSCOL
FINANCE AND INVESTMENT SECTOR-JULY-DECEMBER 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.00*	*Value of European call option*	*Value of European put option*
Barclays Bank	86	48	12.1	36	0.5	40.8401	0.996	-5.6669	0.0005	0.0071	0.2241	0.029	-0.004	-0.2126	0.0005	0.0071	-0.0018	75.5	-13.3401	-27.529
		58				31.6541	0.972	-7.674	0.0029	0.039	0.2597	0.2573	-0.028	-1.0834	0.0029	0.039	-0.0133	75.5	-14.1541	-17.7573
		68				23.1267	0.9009	-10.3762	0.008	0.106	0.2718	1.1443	-0.0991	-2.6493	0.008	0.106	-0.0483	75.5	-15.6267	-8.6443
		78				15.8526	0.7727	-12.7106	0.0138	0.1834	0.253	3.2846	-0.2273	-3.8474	0.0138	0.1834	-0.1141	75.5	-18.3526	-0.7846
		88				10.2187	0.608	-13.4893	0.0176	0.2337	0.2103	7.065	-0.392	-3.4897	0.0176	0.2337	-0.2039	75.5	-22.7187	5.435
		79				15.2123	0.7574	-12.8716	0.0143	0.1902	0.2496	3.5856	-0.2426	-3.8947	0.0143	0.1902	-0.1223	75.5	-18.7123	-0.0856
		80				14.5888	0.7417	-13.0153	0.0148	0.1966	0.246	3.9036	-0.2583	-3.9248	0.0148	0.1966	-0.1306	75.5	-19.0888	**0.5964**
City Trust Ltd	20	17	12.1	19	0.5	4.0441	0.9578	-2.0658	0.0335	0.0127	0.0756	0.0485	-0.0422	-0.134	0.0335	0.0127	-0.0045	23.25	2.2059	-6.2985
		28				0.0225	0.0234	-0.2023	0.0206	0.0078	0.0022	6.3827	-0.9766	2.9793	0.0206	0.0078	-0.1296	23.25	-4.7725	-1.6327
		22				0.7711	0.4235	-1.9813	0.1457	0.0554	0.0385	1.4826	-0.5765	0.5185	0.1457	0.0554	-0.0651	23.25	**0.4789**	-2.7326
		23				0.4779	0.3002	-1.6014	0.1294	0.0492	0.0276	2.1309	-0.6998	1.0121	0.1294	0.0492	-0.0806	23.25	-0.2279	-2.3809
CFC Bank	9.8	5	12.1	40	0.5	5.0957	0.9969	-0.5904	0.0034	0.0007	0.0234	0.0029	-0.0031	-0.0223	0.0034	0.0007	-0.0002	10.05	-0.0457	-5.0529
		14				0.2428	0.1824	-0.9199	0.0955	0.0183	0.0077	3.6229	-0.8176	0.671	0.0955	0.0183	-0.0582	10.05	-4.1928	0.3271
		13				0.3796	0.2597	-1.16	0.117	0.0225	0.0108	2.8183	-0.7403	0.3172	0.117	0.0225	-0.0504	10.05	-3.3296	**0.1317**
		12				0.5832	0.359	-1.3902	0.1348	0.0259	0.0147	2.0805	-0.641	-0.0266	0.1348	0.0259	-0.0418	10.05	-2.5332	-0.1305
Diamond Trust Banl	20	10	12.1	29	0.5	10.5857	0.9999	-1.1374	0.0001	0	0.0471	0.0001	-0.0001	-0.0011	0.0001	0	0	14	-6.5857	-4.0001
		24				0.7394	0.3113	-2.1116	0.0862	0.05	0.0274	3.3338	-0.6887	0.6156	0.0862	0.05	-0.0855	14	-10.7394	6.6662
		15				5.9417	0.964	-1.934	0.0193	0.0112	0.0667	0.0632	-0.036	-0.2295	0.0193	0.0112	-0.0039	14	-6.9417	**0.9368**
		14				6.8456	0.9837	-1.7154	0.0099	0.0058	0.0641	0.0257	-0.0163	-0.1245	0.0099	0.0058	-0.0018	14	-6.8456	-0.0257
Housing Finance Cc	7.05	1	12.1	111	0.5	6.1117	0.9984	-0.1398	0.0009	0.0003	0.0046	0.0031	-0.0016	-0.0261	0.0009	0.0003	-0.0001	5.5	-1.6117	-4.5031
of Kenya		16				0.6832	0.2827	-2.0294	0.0611	0.0169	0.0065	8.6961	-0.7173	-0.2113	0.0611	0.0169	-0.0688	5.5	-11.1832	1.8039
		6				2.7115	0.7501	-2.069	0.0574	0.0158	0.0129	1.3101	-0.2499	-1.3873	0.0574	0.0158	-0.0154	5.5	-3.2115	-0.8101
		7				2.3192	0.6838	-2.2708	0.0643	0.0177	0.0125	1.8593	-0.3162	-1.4754	0.0643	0.0177	-0.0204	5.5	-3.8192	-0.3593
		8				1.9924	0.6211	-2.3931	0.0688	0.019	0.0119	2.4739	-0.3789	-1.484	0.0688	0.019	-0.0257	5.5	-4.4924	**0.0261**
ICDC Investments	49.5	33	12.1	27	0.5	18.4506	0.9944	-3.8657	0.0017	0.0056	0.1539	0.018	-0.0056	-0.1158	0.0017	0.0056	-0.0015	46.5	-4.9506	-13.518
Co Ltd		43				9.6589	0.8747	-6.0089	0.0218	0.0722	0.1682	0.6406	-0.1253	-1.1227	0.0218	0.0722	-0.0342	46.5	-6.1589	-4.1406
		53				3.5848	0.5214	-6.4474	0.0422	0.1394	0.1111	3.9808	-0.4786	-0.4249	0.0422	0.1394	-0.1384	46.5	-10.0848	2.5192
		48				6.157	0.7166	-6.7381	0.0358	0.1185	0.1466	1.8459	-0.2834	-1.2838	0.0358	0.1185	-0.0794	46.5	-7.657	-0.3459
		49				5.5655	0.6789	-6.7689	0.0379	0.1253	0.1402	2.1958	-0.3211	-1.201	0.0379	0.1253	-0.0904	46.5	-8.0655	**0.3042**
Jubilee Insurance	22	20	12.1	24	0.5	3.5066	0.8418	-2.7137	0.0647	0.0376	0.0751	0.3353	-0.1582	-0.4411	0.0647	0.0376	-0.0191	18.5	-5.0066	1.1647
Co Ltd		30				0.1318	0.0827	-0.7728	0.0408	0.0237	0.0084	6.3748	-0.9173	2.6361	0.0408	0.0237	-0.1328	18.5	-11.6318	5.1252
KCB Ltd	28	15	12.1	34	0.5	13.8816	0.9985	-1.7319	0.0007	0.001	0.0704	0.0031	-0.0015	-0.0274	0.0007	0.001	-0.0002	25.5	-3.3816	-10.5031
		25				5.3095	0.8003	-3.9468	0.0416	0.0554	0.0855	0.8453	-0.1997	-1.106	0.0416	0.0554	-0.0322	25.5	-4.8095	-1.3453
		35				1.08	0.2888	-3.1454	0.0508	0.0676	0.035	6.0302	-0.7112	0.8317	0.0508	0.0676	-0.1297	25.5	-10.58	3.4698
		26				4.6521	0.7516	-4.1105	0.047	0.0627	0.082	1.1294	-0.2484	-1.1561	0.047	0.0627	-0.0404	25.5	-5.1521	-0.6294

		27				4.0491	0.6993	-4.2176	0.0517	0.0689	0.0777	1.4678	-0.3007	-1.1496	0.0517	0.0689	-0.0494	25.5	-5.5491	**0.0322**
National Bank Ltd	3.6	1	12.1	51	0.5	2.6586	1	-0.1139	0.0002	0	0.0047	0	0	-0.0002	0.0002	0	0	3.15	-0.5086	-2.15
		2				1.7305	0.976	-0.2885	0.0435	0.0014	0.0089	0.0133	-0.024	-0.0613	0.0435	0.0014	-0.0005	3.15	-0.5805	-1.1633
		3				0.9461	0.8032	-0.5947	0.2135	0.0071	0.0097	0.1704	-0.1968	-0.2538	0.2135	0.0071	-0.0044	3.15	-0.7961	-0.3204
		4				0.4482	0.5221	-0.6899	0.3068	0.0101	0.0072	0.6139	-0.4779	-0.2354	0.3068	0.0101	-0.0117	3.15	-1.2982	**0.2361**
NIC Bank Ltd	21	10	12.1	39	0.5	11.5877	0.9988	-1.1554	0.0007	0.0006	0.0469	0.002	-0.0012	-0.0191	0.0007	0.0006	-0.0001	17.75	-3.8377	-7.752
		20				3.4372	0.7032	-3.3713	0.0597	0.0514	0.0567	1.2659	-0.2968	-1.0987	0.0597	0.0514	-0.0375	17.75	-5.6872	0.9841
		19				4.0366	0.7641	-3.2329	0.0532	0.0457	0.0601	0.9239	-0.2359	-1.0739	0.0532	0.0457	-0.0294	17.75	-5.2866	**0.3261**
		18				4.7007	0.8201	-3.0304	0.0453	0.039	0.0626	0.6466	-0.1799	-0.9851	0.0453	0.039	-0.0221	17.75	-4.9507	-0.3966
Pan Africa Ins Co	20	8	12.1	39	0.5	12.4687	0.9999	-0.9113	0.0001	0.0001	0.0376	0.0002	-0.0001	-0.0022	0.0001	0.0001	0	11	-9.4687	-3.0002
		18				3.9049	0.77	-3.0622	0.0551	0.0429	0.0575	0.8507	-0.23	-1.0169	0.0551	0.0429	-0.0273	11	-10.9049	6.1493
		13				7.8255	0.9725	-1.7522	0.0115	0.009	0.0581	0.0641	-0.0275	-0.275	0.0115	0.009	-0.0031	11	-9.8255	1.9359
		12				8.7316	0.9864	-1.5191	0.0063	0.0049	0.055	0.0288	-0.0136	-0.1555	0.0063	0.0049	-0.0015	11	-9.7316	**0.9712**
		11				9.6554	0.9942	-1.3255	0.003	0.0023	0.0511	0.0111	-0.0058	-0.0756	0.003	0.0023	-0.0006	11	-9.6554	-0.0111
Standard Chartered Bank Ltd	48	22	12.1	51	0.5	27.326	0.994	-2.7556	0.001	0.0058	0.1019	0.0375	-0.006	-0.2558	0.001	0.0058	-0.0016	49.5	0.174	-27.6019
		32				18.5025	0.9295	-5.489	0.0078	0.0458	0.1306	0.6284	-0.0705	-1.8528	0.0078	0.0458	-0.0201	49.5	-1.0025	-18.1284
		42				11.3641	0.7636	-8.3892	0.0178	0.1046	0.1264	2.9044	-0.2364	-3.6167	0.0178	0.1046	-0.0713	49.5	-3.8641	-10.4044
		52				6.4697	0.55	-9.257	0.0229	0.1343	0.0997	7.4243	-0.45	-3.3482	0.0229	0.1343	-0.1451	49.5	-8.9697	-4.9243
		62				3.5024	0.3587	-8.1228	0.0216	0.1268	0.0686	13.8713	-0.6413	-1.0777	0.0216	0.1268	-0.2233	49.5	-16.0024	-1.3713
		72				1.84	0.2187	-6.1524	0.017	0.1001	0.0433	21.6234	-0.7813	2.029	0.017	0.1001	-0.2956	49.5	-24.34	0.8766
		27				22.7762	0.974	-3.9394	0.0035	0.0205	0.1199	0.1949	-0.026	-0.8713	0.0035	0.0205	-0.0072	49.5	-0.2762	-22.6949
		26				23.6695	0.9797	-3.6676	0.0028	0.0166	0.1168	0.1468	-0.0203	-0.7132	0.0028	0.0166	-0.0056	49.5	-0.1695	-23.6468
		25				24.5724	0.9845	-3.4128	0.0023	0.0132	0.1134	0.1083	-0.0155	-0.5721	0.0023	0.0132	-0.0043	49.5	-0.0724	-24.6083
		24				25.4836	0.9884	-3.1759	0.0018	0.0103	0.1098	0.0781	-0.0116	-0.4487	0.0018	0.0103	-0.0032	49.5	**0.0164**	-25.5781
		67				2.5455	0.2819	-7.1726	0.0195	0.1146	0.0549	17.6216	-0.7181	0.4407	0.0195	0.1146	-0.2604	49.5	-20.0455	-0.1216
		68				2.3864	0.2682	-6.9705	0.019	0.1119	0.0524	18.404	-0.7318	0.7564	0.019	0.1119	-0.2676	49.5	-20.8864	**0.096**

SIMULATION OF OPTION PRICES USING BOPSCOL
INDUSTRIAL AND ALLIED SECTOR-JULY-DECEMBER 2000

Company	*Stock price*	*Exercise price*	*Rf*	*V*	*t*	*Call price*	*Call delta*	*Call theta*	*Call gamma*	*Call vega*	*Call rho*	*Put price*	*Put delta*	*Put theta*	*Put gamma*	*Put vega*	*Put rho*	*Stock price at expiration 31.12.00*	*Value of European call option*	*Value of European put option*
Athi River Mining Ltd	4.55	2	12.07	42	0.5	2.6675	0.9991	-0.2309	0.0023	0.0001	0.0094	0.0004	-0.0009	-0.0036	0.0023	0.0001	0	4	-0.6675	-2.0004
		3				1.7499	0.9603	-0.4319	0.0634	0.0028	0.0131	0.0242	-0.0397	-0.091	0.0634	0.0028	-0.001	4	-0.7499	-1.0242
		4				0.9782	0.7839	-0.7084	0.2169	0.0094	0.0129	0.194	-0.2161	-0.2539	0.2169	0.0094	-0.0059	4	-0.9782	-0.194
		5				0.4713	0.5136	-0.7639	0.2951	0.0128	0.0093	0.6285	-0.4864	-0.1958	0.2951	0.0128	-0.0142	4	-1.4713	**0.3715**
Bamburi Cement Ltd	29.25	17	12.07	14	0.5	13.2456	1	-1.9317	0	0	0.08	0	0	0	0	0	0	33.75	3.5044	-16.75
		27				3.9263	0.9289	-3.199	0.0469	0.0281	0.1162	0.095	-0.0711	-0.131	0.0469	0.0281	-0.0109	33.75	2.8237	-6.845
		37				0.0492	0.0432	-0.4118	0.0317	0.019	0.0061	5.6323	-0.9568	3.7925	0.0317	0.019	-0.1681	33.75	-3.2992	-2.3823
		32				0.7857	0.4019	-2.4439	0.1336	0.08	0.0548	1.6616	-0.5981	1.1923	0.1336	0.08	-0.0958	33.75	0.9643	-3.4116
		33				0.4958	0.2879	-1.9446	0.1178	0.0706	0.0396	2.3131	-0.7121	1.8052	0.1178	0.0706	-0.1157	33.75	**0.2542**	-3.0631
		34				0.2982	0.1946	-1.4486	0.0951	0.057	0.027	3.057	-0.8054	2.4149	0.0951	0.057	-0.1331	33.75	-0.5482	-2.807
BAT Ltd	57	**25**	12.07	52	0.5	33.4996	0.9952	-3.096	0.0007	0.0056	0.1161	0.0355	-0.0048	-0.2552	0.0007	0.0056	-0.0015	60.5	**2.0004**	-35.5355
		35				24.5212	0.953	-5.6549	0.0047	0.0396	0.149	0.4714	-0.047	-1.6778	0.0047	0.0396	-0.0158	60.5	0.9788	-25.9714
		45				16.7593	0.8391	-8.8679	0.0117	0.0984	0.1554	2.1239	-0.1609	-3.7545	0.0117	0.0984	-0.0565	60.5	-1.2593	-17.6239
		55				10.8101	0.6719	-10.8904	0.0172	0.1456	0.1374	5.5891	-0.3281	-4.6407	0.0172	0.1456	-0.1215	60.5	-5.3101	-11.0891
		65				6.6819	0.4963	-10.9691	0.019	0.1608	0.108	10.8752	-0.5037	-3.5831	0.019	0.1608	-0.1979	60.5	-11.1819	-6.3752
		75				4.0131	0.3452	-9.6138	0.0176	0.1485	0.0783	17.6207	-0.6548	-1.0914	0.0176	0.1485	-0.2747	60.5	-18.5131	-3.1207
		85				2.3674	0.23	-7.6611	0.0145	0.1224	0.0537	25.3893	-0.77	1.9976	0.0145	0.1224	-0.3464	60.5	-26.8674	-0.8893
		95				1.3826	0.1489	-5.7195	0.0111	0.0935	0.0355	33.8189	-0.8511	5.0755	0.0111	0.0935	-0.4117	60.5	-35.8826	0.6811
		40				20.4374	0.9051	-7.2998	0.0081	0.0681	0.1558	1.0948	-0.0949	-2.7545	0.0081	0.0681	-0.0325	60.5	**0.0626**	-21.5948
		41				19.6669	0.8933	-7.6284	0.0088	0.0742	0.1562	1.2657	-0.1067	-2.9695	0.0088	0.0742	-0.0368	60.5	-0.1669	-20.7657
		90				1.8107	0.1856	-6.664	0.0128	0.1078	0.0438	29.5399	-0.8144	3.5628	0.0128	0.1078	-0.3798	60.5	-31.3107	-0.0399
		91				1.7158	0.1777	-6.4698	0.0124	0.1049	0.0421	30.3864	-0.8223	3.8706	0.0124	0.1049	-0.3863	60.5	-32.2158	**0.1136**
BOC Gases Ltd	47.25	28	12.07	30	0.5	20.8965	0.9979	-3.2362	0.0007	0.0022	0.1313	0.0067	-0.0021	-0.0545	0.0007	0.0022	-0.0005	47.25	-1.6465	-19.2567
		38				11.8614	0.9218	-5.2897	0.0146	0.0488	0.1585	0.3859	-0.0782	-0.9717	0.0146	0.0488	-0.0204	47.25	-2.6114	-9.6359
		48				5.0204	0.6241	-6.757	0.0379	0.1268	0.1223	2.9592	-0.3759	-1.3027	0.0379	0.1268	-0.1036	47.25	-5.7704	-2.2092
		58				1.5824	0.2824	-4.8074	0.0337	0.1129	0.0588	8.9357	-0.7176	1.7833	0.0337	0.1129	-0.2142	47.25	-12.3324	1.8143
		53				2.914	0.4401	-6.1115	0.0394	0.1318	0.0894	5.5601	-0.5599	-0.089	0.0394	0.1318	-0.1601	47.25	-8.664	**0.1899**
		52				3.2672	0.4757	-6.3097	0.0397	0.133	0.096	4.9719	-0.5243	-0.4009	0.0397	0.133	-0.1487	47.25	-8.0172	-0.2219
Carbacid Investment	56	23	12.07	40	0.5	34.348	0.9998	-2.6256	0.0001	0.0003	0.1082	0.001	-0.0002	-0.0121	0.0001	0.0003	-0.0001	40	-17.348	-17.001
		33				25.012	0.9869	-4.1842	0.0021	0.0133	0.1513	0.0793	-0.0131	-0.4344	0.0021	0.0133	-0.0041	40	-18.012	-7.0793
		43				16.3537	0.9013	-6.8721	0.011	0.0689	0.1706	0.8354	-0.0987	-1.986	0.011	0.0689	-0.0318	40	-19.3537	2.1646
		42				17.1562	0.915	-6.5793	0.0098	0.0616	0.1704	0.6965	-0.085	-1.8068	0.0098	0.0616	-0.0273	40	-19.1562	1.3035
		41				17.9762	0.9275	-6.2849	0.0087	0.0546	0.1698	0.575	-0.0725	-1.6261	0.0087	0.0546	-0.0232	40	-18.9762	**0.425**
		40				18.8124	0.9388	-5.992	0.0076	0.0479	0.1688	0.4698	-0.0612	-1.4467	0.0076	0.0479	-0.0195	40	-18.8124	-0.4698
Crown Berger Ltd	12.5	8	12.07	34	0.5	4.9832	0.987	-0.988	0.0111	0.003	0.0368	0.0147	-0.013	-0.079	0.0111	0.003	-0.0009	9	-3.9832	-1.0147
		19				0.1071	0.0853	-0.5846	0.0519	0.0138	0.0048	5.4943	-0.9147	1.5744	0.0519	0.0138	-0.0846	9	-10.1071	4.5057
		9				4.082	0.9589	-1.2189	0.0293	0.0078	0.0395	0.0549	-0.0411	-0.1962	0.0293	0.0078	-0.0028	9	-4.082	-0.0549
		10				3.2376	0.9031	-1.4872	0.0571	0.0152	0.0403	0.1519	-0.0969	-0.3509	0.0571	0.0152	-0.0068	9	-4.2376	**0.8481**
Dunlop Kenya Ltd	7.5	5	12.07	22	0.5	2.7932	0.9989	-0.5713	0.0031	0.0002	0.0235	0.0004	-0.0011	-0.0031	0.0031	0.0002	0	6.4	-1.3932	-1.4004

		6				1.865	0.9713	-0.7307	0.0562	0.0035	0.0271	0.0136	-0.0287	-0.0489	0.0562	0.0035	-0.0011	6.4	-1.465	-0.4136
		7				1.0341	0.8184	-0.9239	0.2262	0.014	0.0255	0.1241	-0.1816	-0.1285	0.2262	0.014	-0.0074	6.4	-1.6341	**0.4759**
E A Cables Ltd	8	3	12.07	62	0.5	5.1817	0.9953	-0.384	0.0039	0.0008	0.0139	0.006	-0.0047	-0.0431	0.0039	0.0008	-0.0002	9.25	1.0683	-6.256
		18				0.089	0.0677	-0.5138	0.0373	0.0074	0.0023	9.0348	-0.9323	1.5316	0.0373	0.0074	-0.0825	9.25	-8.839	-0.2848
		8				1.5942	0.6394	-1.7379	0.1067	0.0212	0.0176	1.1257	-0.3606	-0.8288	0.1067	0.0212	-0.0201	9.25	-0.3442	-2.3757
		7				2.0901	0.7458	-1.5922	0.0914	0.0181	0.0194	0.6802	-0.2542	-0.7968	0.0914	0.0181	-0.0136	9.25	**0.1599**	-2.9302
E A Packaging Ltd	13.2	3	12.07	86	0.5	10.3821	0.9977	-0.3933	0.0009	0.0007	0.0139	0.0064	-0.0023	-0.0524	0.0009	0.0007	-0.0002	7.5	-5.8821	-4.5064
		13				3.5422	0.6658	-3.5548	0.0453	0.034	0.0262	2.5809	-0.3342	-2.0776	0.0453	0.034	-0.035	7.5	-9.0422	2.9191
		8				6.2361	0.89	-2.1743	0.0234	0.0175	0.0276	0.5676	-0.11	-1.2652	0.0234	0.0175	-0.0101	7.5	-6.7361	-0.0676
		9				5.5788	0.8492	-2.5577	0.0291	0.0218	0.0282	0.8517	-0.1508	-1.535	0.0291	0.0218	-0.0142	7.5	-7.0788	**0.6483**
EA Portland Cement	12.4	9	12.07	24	0.5	3.9346	0.9901	-1.0627	0.0126	0.0023	0.0417	0.0075	-0.0099	-0.04	0.0126	0.0023	-0.0007	11.7	-1.2346	-2.7075
		17				0.0693	0.078	-0.4152	0.0693	0.0128	0.0045	3.6737	-0.922	1.5165	0.0693	0.0128	-0.0755	11.7	-5.3693	1.6263
		14				0.53	0.3918	-1.3309	0.1826	0.0337	0.0216	1.3101	-0.6082	0.26	0.1826	0.0337	-0.0443	11.7	-2.83	0.9899
		13				0.9162	0.5644	-1.5626	0.1871	0.0345	0.0304	0.7549	-0.4356	-0.0854	0.1871	0.0345	-0.0308	11.7	-2.2162	**0.5451**
		12				1.47	0.7369	-1.6122	0.1551	0.0286	0.0383	0.3672	-0.2631	-0.2486	0.1551	0.0286	-0.0182	11.7	-1.77	-0.0672
Firestone EA Ltd	12.95	7	12.07	30	0.5	6.3603	0.9995	-0.7995	0.0006	0.0002	0.0329	0.0004	-0.0005	-0.0041	0.0006	0.0002	0	11.5	-1.8603	-4.5004
		17				0.2544	0.1861	-0.9963	0.0975	0.0245	0.0108	3.3088	-0.8139	0.9354	0.0975	0.0245	-0.0692	11.5	-5.7544	2.1912
		12				2.0544	0.7733	-1.7882	0.1096	0.0276	0.0398	0.4016	-0.2267	-0.4246	0.1096	0.0276	-0.0167	11.5	-2.5544	**0.0984**
		11				2.7781	0.877	-1.5947	0.0741	0.0186	0.0429	0.1839	-0.123	-0.3448	0.0741	0.0186	-0.0089	11.5	-2.2781	-0.6839
EABL	65.5	58	12.07	17	0.5	11.1007	0.9422	-7.0197	0.0147	0.0536	0.2531	0.2039	-0.0578	-0.4291	0.0147	0.0536	-0.0199	74.5	5.3993	-16.7039
		68				3.901	0.5989	-7.3082	0.0491	0.1791	0.1766	2.4185	-0.4011	0.4188	0.0491	0.1791	-0.1434	74.5	2.599	-8.9185
		78				0.7611	0.1865	-3.495	0.0341	0.1243	0.0573	8.693	-0.8135	5.3682	0.0341	0.1243	-0.3099	74.5	-4.2611	-5.193
		73				1.8575	0.367	-5.6426	0.0478	0.1744	0.1109	5.0822	-0.633	2.6525	0.0478	0.1744	-0.2327	74.5	-0.3575	-6.5822
		72				2.181	0.411	-6.0488	0.0494	0.1802	0.1237	4.4643	-0.589	2.1327	0.0494	0.1802	-0.2152	74.5	**0.319**	-6.9643
Kenya National Mills	10.5	3	12.07	80	0.5	7.686	0.9954	-0.4136	0.0023	0.001	0.0138	0.0103	-0.0046	-0.0727	0.0023	0.001	-0.0003	7	-3.686	-4.0103
		13				1.7523	0.5048	-2.7977	0.0672	0.0296	0.0177	3.491	-0.4952	-1.3204	0.0672	0.0296	-0.0435	7	-7.7523	2.509
		8				3.8163	0.8079	-2.1859	0.046	0.0203	0.0233	0.8477	-0.1921	-1.2769	0.046	0.0203	-0.0143	7	-4.8163	**0.1523**
		7				4.4398	0.8657	-1.8463	0.0364	0.0161	0.0233	0.5299	-0.1343	-1.0509	0.0364	0.0161	-0.0097	7	-4.4398	-0.5299
Kenya Oil Co Ltd	82	64	12.07	23	0.5	21.8759	0.9759	-7.7736	0.0042	0.0328	0.2908	0.1277	-0.0241	-0.5012	0.0042	0.0328	-0.0105	73	-12.8759	-9.1277
		74				13.3514	0.8607	-9.8652	0.0166	0.1286	0.2861	1.0176	-0.1393	-1.4565	0.0166	0.1286	-0.0622	73	-14.3514	-0.0176
		84				6.8084	0.6195	-10.3896	0.0286	0.2209	0.22	3.8889	-0.3805	-0.8446	0.0286	0.2209	-0.1754	73	-17.8084	7.1111
		75				12.5884	0.8416	-10.0338	0.0181	0.1402	0.2821	1.1961	-0.1584	-1.5114	0.0181	0.1402	-0.0709	73	-14.5884	**0.8039**
KPLC	51.5	20	12.07	46	0.5	32.674	0.9994	-2.3021	0.0001	0.0007	0.094	0.0027	-0.0006	-0.0295	0.0001	0.0007	-0.0002	40	-12.674	-20.0027
		30				23.4126	0.9778	-4.1392	0.0032	0.0193	0.1347	0.1557	-0.0222	-0.7303	0.0032	0.0193	-0.0065	40	-13.4126	-10.1557
		40				15.1133	0.8697	-7.131	0.0126	0.0772	0.1484	1.2707	-0.1303	-2.5857	0.0126	0.0772	-0.0399	40	-15.1133	-1.2707
		50				8.8209	0.6697	-9.1669	0.0216	0.1319	0.1283	4.3927	-0.3303	-3.4853	0.0216	0.1319	-0.107	40	-18.8209	5.6073
		41				14.382	0.8529	-7.4203	0.0137	0.0838	0.1477	1.4808	-0.1471	-2.7614	0.0137	0.0838	-0.0453	40	-15.382	-0.4808
		42				13.6723	0.8352	-7.696	0.0148	0.0903	0.1467	1.7126	-0.1648	-2.9235	0.0148	0.0903	-0.051	40	-15.6723	**0.2874**

Total Kenya Ltd	51	29	12.07	43	0.5	23.7806	0.9863	-3.7428	0.0023	0.0126	0.1326	0.0822	-0.0137	-0.4475	0.0023	0.0126	-0.0039	55	**2.2194**	-26.0822
		39				15.2147	0.8912	-6.5428	0.012	0.0673	0.1512	0.9307	-0.1088	-2.1112	0.012	0.0673	-0.0324	55	0.7853	-16.9307
		49				8.6172	0.6851	-8.685	0.0229	0.1281	0.1316	3.7475	-0.3149	-3.1171	0.0229	0.1281	-0.099	55	-2.6172	-9.7475
		44				11.6149	0.7984	-7.8746	0.0181	0.1014	0.1455	2.0381	-0.2016	-2.8749	0.0181	0.1014	-0.0616	55	-0.6149	-13.0381
		43				12.2885	0.819	-7.6412	0.017	0.0949	0.1474	1.7702	-0.181	-2.7551	0.017	0.0949	-0.055	55	-0.2885	-13.7702
		42				12.986	0.8387	-7.3885	0.0158	0.0882	0.1489	1.5263	-0.1613	-2.616	0.0158	0.0882	-0.0488	55	**0.014**	-14.5263
Unga Group Ltd	15.4	4	12.07	73	0.5	11.6379	0.9986	-0.4881	0.0006	0.0005	0.0187	0.0037	-0.0014	-0.0336	0.0006	0.0005	-0.0001	13.9	-1.7379	-9.9037
		14				4.1485	0.7121	-3.5346	0.0429	0.0371	0.0341	1.9286	-0.2879	-1.9438	0.0429	0.0371	-0.0318	13.9	-4.2485	-1.8286
		24				1.2549	0.314	-3.2523	0.0446	0.0386	0.0179	8.4493	-0.686	-0.5251	0.0446	0.0386	-0.0951	13.9	-11.3549	1.6507
		19				2.2843	0.4873	-3.7997	0.0502	0.0434	0.0261	4.7715	-0.5127	-1.6407	0.0502	0.0434	-0.0633	13.9	-7.3843	**0.3285**
		18				2.5761	0.529	-3.8353	0.0501	0.0433	0.0279	4.1219	-0.471	-1.7899	0.0501	0.0433	-0.0569	13.9	-6.6761	-0.0219

APPENDIX 7 – SUMMARY OF FINDINGS

SUMMARY OF FINDINGS-January -June 1997

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	107 to 159	Nil	125 to 159
	Eaagads Limited	17 to 70	Nil	30 to 70
	George Williamson Kenya Ltd	28 to 185	Nil	87 to 185
	Kakuzi Ltd	45 to 185	Nil	125 to 185
	Kapchorua Tea Co Ltd	70 to 71	Nil	70 to 71
	Limuru Tea Co Ltd	677 to 1595	Nil	1005 to 1595
	Rea Vipingo Ltd	7 to 15	Nil	10 to 15
	Sasini Tea & Coffee Ltd	47 to 133	47 to 82	Nil
Finance & Investment	*Barclays Bank Ltd*	95 to 151	Nil	111 to 151
	City Trust Ltd	28 to 42	Nil	38 to 42
	CFC Bank Ltd	12 to 33	12 to 21	Nil
	Diamond Trust Bank Kenya Ltd	21 to 42	Nil	31 to 42
	Housing Finance Co (K) Ltd	18 to 26	Nil	24 to 26
	ICDC Investments Co Ltd	12 to 95	12 to 39	Nil
	Jubilee Insurance Co Ltd	25 to 55	25 to 27	47 to 55
	Kenya Commercial Bank Ltd	53 to 135	53 to 109	Nil
	National Bank of Kenya Ltd	9 to 22	Nil	16 to 22
	National Industrial Credit Ltd	36 to 70	36 to 57	Nil
	Pan Africa Insurance Ltd	29 to 74	29 to 58	Nil
	Standard Chartered Bank Ltd	43 to 62	Nil	48 to 62
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed		
	A Baumann & Co Ltd	11 to 53	Nil	28 to 53
	CMC Holdings Ltd	43 to 123	43 to 72	123
	Car & General (K) Ltd	13 to 24	Nil	18 to 24
	Express Kenya Ltd	53 to 89	Nil	72 to 89
	Kenya Airways Ltd	7 to 10	Nil	9 to 10
	Lonhro Motors (EA) Ltd	12 to 332	Nil	104 to 332
	Marshalls (EA) Ltd	6 to 167	6 to 64	Nil
	Nation Media Group Ltd	53 to 249	Nil	144 to 249
	Pearl Drycleaners Ltd	8 to 13	Nil	11 to 13
	Standard Newspapers Ltd	36 to 254	Nil	150 to 254
	Tourism Promotion Services (Serena)	Not listed for the full year		
	Uchumi Supermarkets Ltd	21 to 73	Nil	46 to 73
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full year		
	Bamburi Cement Ltd	20 to 69	Nil	41 to 69
	British American Tobacco Ltd	45 to 104	Nil	62 to 104
	B O C Gases Ltd	11 to 236	11 to 33	Nil
	Carbacid Investments Ltd	57 to 97	Nil	87 to 97
	Crown Berger Ltd	7 to 19	Nil	11 to 19
	Dunlop Kenya Ltd	11 to 973		
	EA Cables Ltd	23 to 49	Nil	34 to 49
	EA Packaging Ltd	29 to 112	Nil	76 to 112
	EA Portland Cement Ltd	9 to 46	9 to 43	Nil
	Firestone East Africa Ltd	17 to 44	Nil	30 to 44
	East Africa Breweries Ltd	37 to 75	37 to 53	Nil
	Kenya National Mills Ltd	23 to 59	23 to 45	Nil
	Kenya Oil Co Ltd	45 to 83	Nil	72 to 83
	Kenya Power & Lighting Ltd	76 to 283	76 to 170	Nil
	Total Kenya Ltd	32 to 155	Nil	95 to 155
	Unga Group Ltd	70 to 206	70 10 138	Nil

SUMMARY OF FINDINGS-July-December 1997

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	89 to 132	Nil	124 to 132
	Eaagads Limited	16 to 67	16 to 40	Nil
	George Williamson Kenya Ltd	27 to 176	27 to 68	163 to 176
	Kakuzi Ltd	47 to 193	Nil	108 to 193
	Kapchorua Tea Co Ltd	70 to 71	Nil	70 to 71
	Limuru Tea Co Ltd	521 to 1227	Nil	751-1227
	Rea Vipingo Ltd	6 to 13	Nil	10 to 13
	Sasini Tea & Coffee Ltd	66 to 188	66 to 71	117 to 188
Finance & Investment	*Barclays Bank Ltd*	90 to 144	Nil	119 to 144
	City Trust Ltd	30 to 45	Nil	35 to 45
	CFC Bank Ltd	13 to 38	Nil	19 to 38
	Diamond Trust Bank Kenya Ltd	17 to 34	Nil	23 to 34
	Housing Finance Co (K) Ltd	17 to 26	Nil	20 to 25
	ICDC Investments Co Ltd	14 to 119	Nil	38 to 119
	Jubilee Insurance Co Ltd	27 to 59	Nil	36 to 59
	Kenya Commercial Bank Ltd	68 to 172	Nil	78 to 172
	National Bank of Kenya Ltd	9 to 21	Nil	14 to 21
	National Industrial Credit Ltd	43 to 84	Nil	51 to 84
	Pan Africa Insurance Ltd	35 to 92	Nil	43 to 92
	Standard Chartered Bank Ltd	38 to 54	Nil	47 to 54
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed		
	A Baumann & Co Ltd	8 to 41	Nil	17 to 41
	CMC Holdings Ltd	51 to 145	Nil	86 to 145
	Car & General (K) Ltd	11 to 21	Nil	17 to 21
	Express Kenya Ltd	50 to 84	Nil	60 to 84
	Kenya Airways Ltd	7 to 10	Nil	9 to 10
	Lonhro Motors (EA) Ltd	8 to 214	Nil	44 to 214
	Marshalls (EA) Ltd	10 to 271	Nil	48 to 271
	Nation Media Group Ltd	55 to 255	Nil	189 to 255
	Pearl Drycleaners Ltd	8 to 14	Nil	12 to 14
	Standard Newspapers Ltd	100 to 701	Nil	264 to 701
	Tourism Promotion Services (Serena)	Not listed for the full year		
	Uchumi Supermarkets Ltd	21 to 73	Nil	44 to 73
Industrial and Allied	*Athi River Mining Ltd*	Not listed for the full year		
	Bamburi Cement Ltd	18 to 64	Nil	40 to 64
	British American Tobacco Ltd	33 to 77	Nil	51 to 77
	B O C Gases Ltd	12 to 256	Nil	96 to 256
	Carbacid Investments Ltd	58 to 100	Nil	67 to 100
	Crown Berger Ltd	6 to 16	Nil	11 to 16
	Dunlop Kenya Ltd	11 to 955	Nil	122 to 955
	EA Cables Ltd	20 to 44	Nil	30 to 44
	EA Packaging Ltd	27 to 107	Nil	51 to 107
	EA Portland Cement Ltd	17 to 84	Nil	21 to 84
	Firestone East Africa Ltd	15 to 41	Nil	25 to 41
	East Africa Breweries Ltd	42 to 86	Nil	50 to 86
	Kenya National Mills Ltd	31 to 79	Nil	38 to 79
	Kenya Oil Co Ltd	45 to 82	Nil	49 to 82
	Kenya Power & Lighting Ltd	144 to 538	Nil	218 to 538
	Total Kenya Ltd	29 to 139	Nil	54 to 139
	Unga Group Ltd	88 to 257	Nil	123 to 257

SUMMARY OF FINDINGS-January -June 1998

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	91 to172	91 to 125	Nil
	Eaagads Limited	29 to 66	Nil	38 to 66
	George Williamson Kenya Ltd	89 to 169	89 to 140	Nil
	Kakuzi Ltd	83 to 174	83 to 141	Nil
	Kapchorua Tea Co Ltd	64 to 119	Nil	82 to 119
	Limuru Tea Co Ltd	780 to 820	Nil	780-820
	Rea Vipingo Ltd	6 to 9	Nil	7 to 9
	Sasini Tea & Coffee Ltd	34 to 118	34 to 66	Nil
Finance & Investment	*Barclays Bank Ltd*	69 to 209	Nil	105 to 209
	City Trust Ltd	9 to 78	Nil	40 to 78
	CFC Bank Ltd	12 to 23	Nil	18 to 23
	Diamond Trust Bank Kenya Ltd	17 to 29	Nil	23 to 29
	Housing Finance Co (K) Ltd	10 to 25	Nil	18 to 25
	ICDC Investments Co Ltd	23 to 65	23 to 30	49 to 65
	Jubilee Insurance Co Ltd	24 to 41	Nil	31 to 41
	Kenya Commercial Bank Ltd	53 to 102	Nil	71 to 102
	National Bank of Kenya Ltd	4 to 23	Nil	16 to 23
	National Industrial Credit Ltd	15 to 71	Nil	36 to 71
	Regent Undervalued Assets Africa Fund	580 to 580		
	Pan Africa Insurance Ltd	18 to 30	Nil	21 to 30
	Standard Chartered Bank Ltd	31 to 78	Nil	44 to 78
Commercial & Services	*Africa Lakes Corporation Plc*			
	A Baumann & Co Ltd	14 to 19	Nil	16 to 19
	CMC Holdings Ltd	24 to 53	Nil	36 to 53
	Car & General (K) Ltd	7 to 24	Nil	12 to 24
	Express Kenya Ltd	28 to 76	Nil	28 to 76
	Kenya Airways Ltd	6 to 11	Nil	8 to 11
	Lonhro Motors (EA) Ltd	22 to 44	Nil	27 to 44
	Marshalls (EA) Ltd	20 to 33	Nil	30 to 33
	Nation Media Group Ltd	37 to 348	Nil	138 to 348
	Pearl Drycleaners Ltd	9 to 11	Nil	
	Standard Newspapers Ltd	6 to 80	Nil	42 to 80
	Tourism Promotion Services (Serena)	9 to 21	Nil	14 to 21
	Uchumi Supermarkets Ltd	28 to 66	28 to 37	55 to 66
Industrial and Allied	*Athi River Mining Ltd*	4 to 15	Nil	11 to 15
	Bamburi Cement Ltd	18 to 66	Nil	39 to 66
	British American Tobacco Ltd	63 to 82	Nil	68 to 82
	B O C Gases Ltd	19 to 69	Nil	39 to 69
	Carbacid Investments Ltd	40 to 100	Nil	47 to 100
	Crown Berger Ltd	5 to 17	Nil	11 to 17
	Dunlop Kenya Ltd	6 to 48	6 to 28	Nil
	EA Cables Ltd	16 to 36	Nil	23 to 36
	EA Packaging Ltd	18 to 60	Nil	21 to 60
	EA Portland Cement Ltd	14 to 28	14 to 17	25 to 28
	Firestone East Africa Ltd	11 to 25	Nil	20 to 25
	East Africa Breweries Ltd	37 to 102	37 to 45	71 to 102
	Kenya National Mills Ltd	6 to 33	6 to 23	Nil
	Kenya Oil Co Ltd	39 to 73	39 to 50	66 to 73
	Kenya Power & Lighting Ltd	83 to 176	Nil	142 to 176
	Total Kenya Ltd	28 to 83	Nil	43 to 83
	Unga Group Ltd	9 to 120	9 to 120	Nil

SUMMARY OF FINDINGS-July-December 1998

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	109 to 206	Nil	149 to 206
	Eaagads Limited	26 to 59	Nil	40 to 59
	George Williamson Kenya Ltd	146 to 277	Nil	147 to 277
	Kakuzi Ltd	123 to 256	Nil	145 to 256
	Kapchorua Tea Co Ltd	69 to 128	69 to 92	Nil
	Limuru Tea Co Ltd	785 to 826	Nil	785 to 826
	Rea Vipingo Ltd	4 to 7	Nil	7
	Sasini Tea & Coffee Ltd	42 to 143	Nil	76 to 143
	Theta Group Ltd			
	Ol Pejeta Ranching Ltd			
Finance & Investment	*Barclays Bank Ltd*	63 to 179	61 to 109	Nil
	City Trust Ltd	9 to 72	Nil	31 to 72
	CFC Bank Ltd	11 to 22	Nil	16 to 22
	Diamond Trust Bank Kenya Ltd	16 to 28	Nil	22 to 28
	Housing Finance Co (K) Ltd	10 to 26	Nil	18 to 26
	ICDC Investments Co Ltd	26 to 72	Nil	49 to 72
	Jubilee Insurance Co Ltd	23 to 40	Nil	31 to 40
	Kenya Commercial Bank Ltd	47 to 90	Nil	62 to 90
	National Bank of Kenya Ltd	4 to 23	Nil	9 to 23
	National Industrial Credit Ltd	13 to 58	Nil	32 to 58
	Regent Undervalued Assets Africa Fund			
	Pan Africa Insurance Ltd	13 to 21	Nil	17 to 21
	Standard Chartered Bank Ltd	27 to 69	27 to 47	Nil
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed		
	A Baumann & Co Ltd	14 to 19	14 to 16	Nil
	CMC Holdings Ltd	21 to 47	Nil	34 to 47
	Car & General (K) Ltd	5 to 17	5 to 7	15 to 17
	Express Kenya Ltd	14 to 38	Nil	31 to 38
	Kenya Airways Ltd	5 to 11	5 to 7	10 to 11
	Lonhro Motors (EA) Ltd	14 to 28	Nil	23 to 28
	Marshalls (EA) Ltd	22 to 35	Nil	26 to 35
	Nation Media Group Ltd	32 to 302	32 to 98	251 to 302
	Pearl Drycleaners Ltd	9 to 11	Nil	11
	Standard Newspapers Ltd	5 to 75	Nil	25 to 75
	Tourism Promotion Services (Serena)	8 to 20	Nil	15 to 20
	Uchumi Supermarkets Ltd	31 to 74	Nil	47 to 74
Industrial and Allied	*Athi River Mining Ltd*	4 to 14	Nil	7 to 14
	Bamburi Cement Ltd	17 to 63	Nil	42 to 63
	British American Tobacco Ltd	65 to 84	Nil	72 to 84
	B O C Gases Ltd	18 to 65	Nil	42 to 65
	Carbacid Investments Ltd	36 to 90	36 to 73	Nil
	Crown Berger Ltd	5 to 16	Nil	9 to 16
	Dunlop Kenya Ltd	10 to 74	Nil	20 to 74
	EA Cables Ltd	12 to 28	Nil	21 to 28
	EA Packaging Ltd	7 to 25	Nil	16 to 25
	EA Portland Cement Ltd	15 to 31	Nil	18 to 31
	Firestone East Africa Ltd	12 to 26	Nil	17 to 26
	East Africa Breweries Ltd	42 to 116	42 to 64	Nil
	Kenya National Mills Ltd	11 to 54	Nil	17 to 54
	Kenya Oil Co Ltd	39 to 73	Nil	57 to 73
	Kenya Power & Lighting Ltd	89 to 188	Nil	123 to 188
	Total Kenya Ltd	22 to 65	Nil	54 to 65
	Unga Group Ltd	26 to 354	Nil	59 to 354

SUMMARY OF FINDINGS-January -June 1999

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	70 to 206	70 to 87	184 to 206
	Eaagads Limited	14 to 76	Nil	55 to 76
	George Williamson Kenya Ltd	87 to 161	Nil	153 to 161
	Kakuzi Ltd	80 to 167	Nil	123 to 176
	Kapchorua Tea Co Ltd	91 to 176	91 to 149	Nil
	Limuru Tea Co Ltd	588 to 908	Nil	651 to 908
	Rea Vipingo Ltd	4 to 7	Nil	
	Sasini Tea & Coffee Ltd	40 to 83	Nil	55 to 83
Finance & Investment	*Barclays Bank Ltd*	90 to 157	Nil	111 to 158
	City Trust Ltd	20 to 29	Nil	23 to 29
	CFC Bank Ltd	8 to 28	Nil	18 to 27
	Diamond Trust Bank Kenya Ltd	17 to 34	17 to 20	32 to 34
	Housing Finance Co (K) Ltd	9 to 20	Nil	14 to 20
	ICDC Investments Co Ltd	43 to 54	43 to 48	Nil
	Jubilee Insurance Co Ltd	20 to 37	Nil	30 to 37
	Kenya Commercial Bank Ltd	34 to 65	Nil	44 to 65
	National Bank of Kenya Ltd	4 to 10	Nil	7 to 10
	National Industrial Credit Ltd	24 to 35	Nil	29 to 35
	Regent Undervalued Assets Africa Fund	571 to 589		
	Pan Africa Insurance Ltd	4 to 78	4 to 19	
	Standard Chartered Bank Ltd	44 to 66	Nil	50 to 67
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed		
	A Baumann & Co Ltd	14 to 19	Nil	18 to 19
	CMC Holdings Ltd	25 to 39	Nil	29 to 39
	Car & General (K) Ltd	2 to 34	Nil	15 to 34
	Express Kenya Ltd	11 to 45	Nil	29 to 45
	Kenya Airways Ltd	4 to 13	Nil	10 to 13
	Lonhro Motors (EA) Ltd	10 to 29	Nil	18 to 29
	Marshalls (EA) Ltd	18 to 31	Nil	23 to 31
	Nation Media Group Ltd	88 to 162	Nil	134 to 162
	Pearl Drycleaners Ltd	1 to 26	Nil	22 to 26
	Standard Newspapers Ltd	2 to 56	Nil	18 to 56
	Tourism Promotion Services (Serena)	12 to 19	12 to 15	Nil
	Uchumi Supermarkets Ltd	30 to 63	30 to 42	Nil
Industrial and Allied	*Athi River Mining Ltd*	3 to 10	Nil	7 to 10
	Bamburi Cement Ltd	20 to 48	Nil	27 to 48
	British American Tobacco Ltd	48 to 102	Nil	78 to 102
	B O C Gases Ltd	21 to 49	Nil	27 to 49
	Carbacid Investments Ltd	52 to 115	51 to 92	Nil
	Crown Berger Ltd	3 to 24	3 to 4	14 to 24
	Dunlop Kenya Ltd	7 to 32	Nil	16 to 32
	EA Cables Ltd	7 to 43	Nil	28 to 43
	EA Packaging Ltd	5 to 22	Nil	16 to 22
	EA Portland Cement Ltd	2 to 48	Nil	22 to 48
	Firestone East Africa Ltd	12 to 23	Nil	19 to 23
	East Africa Breweries Ltd	55 to 95	55 to 72	Nil
	Kenya National Mills Ltd	4 to 34	Nil	18 to 34
	Kenya Oil Co Ltd	33 to 106	33 to 73	Nil
	Kenya Power & Lighting Ltd	79 to 158	Nil	114 to 158
	Total Kenya Ltd	35 to 70	Nil	49 to 70
	Unga Group Ltd	7 to 120	Nil	38 to 120

SUMMARY OF FINDINGS-July-December 1999

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	73 to 214	Nil	106 to 214
	Eaagads Limited	14 to 74	Nil	27 to 74
	George Williamson Kenya Ltd	88 to 163	Nil	93 to 163
	Kakuzi Ltd	68 to 143	Nil	88 to 143
	Kapchorua Tea Co Ltd	145 to 278	Nil	160 to 278
	Limuru Tea Co Ltd	502 to 775	Nil	668 to 775
	Rea Vipingo Ltd	4 to 7	Nil	5 to 7
	Sasini Tea & Coffee Ltd	31 to 65	Nil	46 to 64
Finance & Investment	*Barclays Bank Ltd*	78 to 136	Nil	105 to 136
	City Trust Ltd	17 to 25	Nil	23 to 25
	CFC Bank Ltd	8 to 27	Nil	17 to 27
	Diamond Trust Bank Kenya Ltd	18 to 37	17 to 22	Nil
	Housing Finance Co (K) Ltd	7 to 16	Nil	11 to 16
	ICDC Investments Co Ltd	49 to 62	Nil	53 to 62
	Jubilee Insurance Co Ltd	19 to 35	Nil	24 to 34
	Kenya Commercial Bank Ltd	25 to 47	Nil	32 to 47
	National Bank of Kenya Ltd	3 to 7	Nil	6 to 7
	National Industrial Credit Ltd	23 to 34	Nil	28 to 34
	Pan Africa Insurance Ltd	5 to 112	Nil	68 to 112
	Standard Chartered Bank Ltd	42 to 63	45 to 54	Nil
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed		
	A Baumann & Co Ltd	14 to 19	Nil	15 to 19
	CMC Holdings Ltd	21 to 33	22 to 26	Nil
	Car & General (K) Ltd	1 to 29	Nil	15 to 29
	Express Kenya Ltd	10 to 40	Nil	20 to 40
	Kenya Airways Ltd	4 to 13	Nil	9 to 13
	Lonhro Motors (EA) Ltd	8 to 23	Nil	14 to 23
	Marshalls (EA) Ltd	16 to 27	16 to 20	Nil
	Nation Media Group Ltd	83 to 153	Nil	101 to 153
	Pearl Drycleaners Ltd	1 to 26	Nil	4 to 26
	Standard Newspapers Ltd	2 to 37	Nil	14 to 37
	Tourism Promotion Services (Serena)	10 to 15	Nil	Nil
	Uchumi Supermarkets Ltd	32 to 69	Nil	40 to 69
Industrial and Allied	*Athi River Mining Ltd*	3 to 9	Nil	8 to 9
	Bamburi Cement Ltd	15 to 35	Nil	30 to 35
	British American Tobacco Ltd	48 to 102	Nil	67 to 102
	B O C Gases Ltd	15 to 35	Nil	30 to 35
	Carbacid Investments Ltd	64 to 144	Nil	77 to 144
	Crown Berger Ltd	4 to 25	4 to 7	Nil
	Dunlop Kenya Ltd	5 to 24	Nil	11 to 24
	EA Cables Ltd	6 to 43	Nil	19 to 43
	EA Packaging Ltd	5 to 20	Nil	8 to 20
	EA Portland Cement Ltd	2 to 40	Nil	16 to 40
	Firestone East Africa Ltd	12 to 23	Nil	17 to 23
	East Africa Breweries Ltd	61 to 107	Nil	71 to 107
	Kenya National Mills Ltd	3 to 28	Nil	11 to 28
	Kenya Oil Co Ltd	45 to 146	Nil	74 to 146
	Kenya Power & Lighting Ltd	70 to 140	Nil	94 to 140
	Total Kenya Ltd	33 to 67	Nil	53 to 67
	Unga Group Ltd	4 to 79	Nil	38 to 80

SUMMARY OF FINDINGS-January -June 2000

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	68 to 148	Nil	75 to 148
	Eaagads Limited	17 to 30	Nil	27 to 30
	George Williamson Kenya Ltd	50 to 166	Nil	79 to 166
	Kakuzi Ltd	50 to 112	Nil	67 to 112
	Kapchorua Tea Co Ltd	151	Nil	151
	Limuru Tea Co Ltd	678	Nil	650 to 678
	Rea Vipingo Ltd	3 to 5	Nil	4 to 5
	Sasini Tea & Coffee Ltd	26 to 60	Nil	36 to 60
Finance & Investment	*Barclays Bank Ltd*	49 to 134	49 to 50	106 to 134
	City Trust Ltd	18 to 30	Nil	21 to 30
	CFC Bank Ltd	6 to 18	Nil	11 to 18
	Diamond Trust Bank Kenya Ltd	14 to 30	Nil	21 to 30
	Housing Finance Co (K) Ltd	1 to 28	Nil	10 to 28
	ICDC Investments Co Ltd	34 to 71	Nil	54 to 71
	Jubilee Insurance Co Ltd	18 to 36	Nil	23 to 36
	Kenya Commercial Bank Ltd	14 to 37	14 to 27	Nil
	National Bank of Kenya Ltd	2 to 7	Nil	4 to 7
	National Industrial Credit Ltd	13 to 39	Nil	22 to 39
	Pan Africa Insurance Ltd	11 to 33	Nil	21 to 33
	Standard Chartered Bank Ltd	21 to 87	21 to 44	Nil
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for the full year		
	A Baumann & Co Ltd	9 to 17	Nil	15 to 17
	CMC Holdings Ltd	16 to 33	Nil	17 to 33
	Car & General (K) Ltd	2 to 28	2 to 6	24 to 28
	Express Kenya Ltd	15 to 22	Nil	20 to 22
	Kenya Airways Ltd	6 to 13	Nil	9 to 13
	Marshalls (EA) Ltd	16 to 28	Nil	19 to 28
	Nation Media Group Ltd	68 to 109	Nil	76 to 109
	Pearl Drycleaners Ltd	2 to 4	Nil	3 to 4
	Standard Newspapers Ltd	2 to 46	Nil	8 to 46
	Tourism Promotion Services (Serena)	3 to 38	Nil	29 to 38
	Uchumi Supermarkets Ltd	36 to 58	36 to 37	50 to 58
Industrial and Allied	*Athi River Mining Ltd*	2 to 8	Nil	5 to 8
	Bamburi Cement Ltd	25 to 37	25 to 28	Nil
	British American Tobacco Ltd	26 to 110	Nil	74 to 110
	B O C Gases Ltd	37 to 85	Nil	48 to 85
	Carbacid Investments Ltd	27 to 83	Nil	54 to 83
	Crown Berger Ltd	6 to 16	11 to 16	Nil
	Dunlop Kenya Ltd	6 to 11	Nil	8 to 11
	EA Cables Ltd	5 to 29	Nil	11 to 29
	EA Packaging Ltd	2 to 28	2 to 6	Nil
	EA Portland Cement Ltd	8 to 16	8 to 11	Nil
	Firestone East Africa Ltd	9 to 21	Nil	14 to 21
	East Africa Breweries Ltd	58 to 93	Nil	68 to 93
	Kenya National Mills Ltd	2 to 21	2 to 6	Nil
	Kenya Oil Co Ltd	53 to 101	53 to 80	Nil
	Kenya Power & Lighting Ltd	35 to 126	Nil	52 to 126
	Total Kenya Ltd	28 to 93	28 to 35	71 to 93
	Unga Group Ltd	6 to 45	Nil	17 to 45

SUMMARY OF FINDINGS-July-December 2000

SECTOR	COMPANY	*Computed exercise price range*	*Range for in the money call option*	*Range for in the money put option*
Agricultural	*Brooke Bond Kenya Limited*	48 to 105	48 to 95	Nil
	Eaagads Limited	17 to 30	Nil	21 to 30
	George Williamson Kenya Ltd	41 to 135	41 to 91	Nil
	Kakuzi Ltd	36 to 80	Nil	56 to 80
	Kapchorua Tea Co Ltd	151	Nil	151
	Limuru Tea Co Ltd	678	Nil	650 to 678
	Rea Vipingo Ltd	2 to 4	Nil	4
	Sasini Tea & Coffee Ltd	20 to 47	Nil	37 to 47
Finance & Investment	*Barclays Bank Ltd*	51 to 139	Nil	80 to 139
	City Trust Ltd	16 to 28	16 to 22	Nil
	CFC Bank Ltd	5 to 16	Nil	13 to 16
	Diamond Trust Bank Kenya Ltd	10 to 23	Nil	15 to 23
	Housing Finance Co (K) Ltd	1 to 19	Nil	8 to 19
	ICDC Investments Co Ltd	33 to 70	Nil	49 to 70
	Jubilee Insurance Co Ltd	16 to 31	Nil	30 to 31
	Kenya Commercial Bank Ltd	18 to 47	Nil	27 to 47
	National Bank of Kenya Ltd	1 to 5	Nil	4 to 5
	National Industrial Credit Ltd	10 to 30	Nil	19 to 30
	Pan Africa Insurance Ltd	8 to 25	Nil	12 to 25
	Standard Chartered Bank Ltd	28 to 113	Nil	68 to 113
Commercial & Services	*Africa Lakes Corporation Plc*	Not listed for the full year		
	A Baumann & Co Ltd	9 to 16	Nil	10 to 16
	CMC Holdings Ltd	9 to 19	Nil	16 to 19
	Car & General (K) Ltd	2 to 31	Nil	18 to 31
	Express Kenya Ltd	15 to 22	Nil	18 to 22
	Kenya Airways Ltd	6 to 13	6 to 8	Nil
	Marshalls (EA) Ltd	13 to 23	Nil	20 to 23
	Nation Media Group Ltd	51` to 81	Nil	70 to 81
	Pearl Drycleaners Ltd	1 to 3	Nil	3
	Standard Newspapers Ltd	1 to 25	Nil	16 to 25
	Tourism Promotion Services (Serena)	2 to 38	Nil	8 to 38
	Uchumi Supermarkets Ltd	39 to 62	39 to 47	Nil
Industrial and Allied	*Athi River Mining Ltd*	2 to 7	Nil	5 to 7
	Bamburi Cement Ltd	28 to 42	28 to 33	Nil
	British American Tobacco Ltd	28 to 119	28 to 40	91 to 119
	B O C Gases Ltd	27 to 63	Nil	53 to 63
	Carbacid Investments Ltd	24 to 74	Nil	41 to 74
	Crown Berger Ltd	7 to 18	Nil	10 to 18
	Dunlop Kenya Ltd	4 to 9	Nil	7 to 9
	EA Cables Ltd	3 to 18	3 to 7	Nil
	EA Packaging Ltd	3 to 39	Nil	9 to 39
	EA Portland Cement Ltd	9 to 17	Nil	13 to 17
	Firestone East Africa Ltd	7 to 17	Nil	12 to 17
	East Africa Breweries Ltd	58 to 93	58 to 72	Nil
	Kenya National Mills Ltd	3 to 24	Nil	8 to 24
	Kenya Oil Co Ltd	29 to 270	Nil	75 to 264
	Kenya Power & Lighting Ltd	20 to 70	Nil	42 to 70
	Total Kenya Ltd	30 to 98	30 to 42	Nil
	Unga Group Ltd	4 to 30	Nil	19 to 30