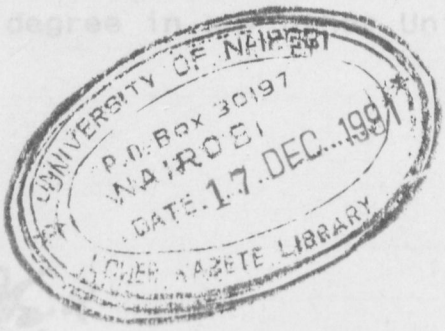
THE BEHAVIOUR OF SHARE PRICES IN THE NAIROBI STOCK EXCHANGE: AN EMPIRICAL INVESTIGATION



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DECLARATION:

This Management Research Project is my original work and has not been presented for a degree in any other University.

Signed:----------

JOSPHAT MBOYA KIWEU.

Date: 9-9-91

This Management Research Project has been submitted for examination with my approval as the University supervisor.

Signed:----------

Prof. N.D. NZOMO.

Date: 5-9-91

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DEDICATED TO

My Mother, ***WAYUA***, who knows the pains of responsibility and the patience it takes to wait on a son that has gone out in pursuit of a dream. Her commitment and daring efforts to succeed as a woman first shocked, and then inspired me on the same. Her teaching still lingers in my mind: "make the best use of your time despite the difficulties of the day, and firmly grasp what you know, and have come to know to be the truth, for in due course it shall bear fruit". To this end, this is her fruit and truly "her project" and I pledge my very best efforts as her Son.

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(J) Mboya Kiweu

Nairobi, June 1991.

ABSTRACT

This study presents a picture of the behaviour of share prices in the Nairobi Stock Exchange, Kenya. Besides exposing the nature and character of the exchange, the study shows the status of the exchange among the world stock markets along with its current state of arts.

Chapter 1 briefly gives the perspective and/or background of the study; chapter 11 outlines share price behaviour hypotheses, theoretical background and prior research work. Chapter 111 describes the research methodology and the data employed. The empirical results are discussed in chapter 1V, and chapter V contains the conclusions.

The study is an empirical examination of the behaviour of ordinary share prices in the Nairobi Stock exchange (NSE); of ten selected "blue chip" companies. The behavior investigated is weekly bid price change over five years from January, 1986 to December, 1990. The bid price successive changes are hypothesized to be random.

Using autocorrelation and runs test, the empirical results tend to confirm this hypothesis. Specifically, the author found that weekly bid price changes are independent of one another and over time the change in price is random. Unfortunate to the investor, there were no reported patterns in share price movements.

The results throw light on a number of interesting questions. First, they demonstrate that in the NSE past price information is immediately impounded in current prices.

Second, they provide evidence that investors in the NSE cannot make any meaningful prediction concerning future prices, and therefore no abnormal profits can be reaped in the exchange. Finally and interestingly, the results are consistent with the notion of efficient market hypothesis and that the NSE is an efficient market: more specifically, in the weak-form level.

CHAPTER 1

PERSPECTIVE

BACKGROUND;

The behavior of share prices over time has been a central area of research in financial economics for many decades. The reason lies in the fact that,correct specifications of the behavior of share prices could have significant implications for the positive and normative theories in finance and/or efficient market hypothesis. More important is the use of share price behavior to the speculator as an important input to trading strategies. All ordinary shares and the lower grades of preferred shares including corporate bonds may be classed as speculative in greater or less degree.[1] This means that these securities carry a significant degree of business and market risk and that their prices will fluctuate substantially, and often rapidly over time.

A market can be efficient in the internal or external sense. The former refers to a case where all the securities are immediately marketable and transaction costs are "reasonably" low; whereas the latter implies a market in which new information is widely, quickly and cheaply available to investors,while at the same time that information includes all that is knowable and relevant for judging securities as the information is rapidly reflected in security prices[2].

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1. Christy A. George and Clendenin C.John,"Introduction to Investments,McGraw-Hill Book Company,1982,p.259

This discussion involves the latter view - the so-called fair games between outside transactions in the market, rather than the internal efficiency which has implications for the structure and organization of markets. The word "efficiency" hereafter therefore refers to external efficiency.

The efficient market hypothesis(EMH) posits to imbue an explanation on how security prices should behave under the conditions of a perfect market characterized by free availability of information, homogeneous investor expectations and zero transaction costs. These conditions sufficiently ensure that prices 'fully reflect' what is knowable[3]. Obviously, when relevant information to the value of a security is reflected in its current price, the same is an unbiased estimate of its intrinsic value[4]. Every time new information is released, the price adjusts towards a new value.

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2. West R., On The Difference Between Internal and External Market Efficiency. Financial Analysts Journal,Nov/Dec,1975,P.30.

3. And indeed all traders have access to the same information. Needless to say a frictionless market is not descriptive of markets met in practice.

4. Economic theory associates this value with the market price at which demand equals supply and at which all arbitrage profits are eliminated.

It is thus new information that causes the price to change; with positive(good) information pushing the value up and bad information pulling it down[5]. The speed of this adjustment process gauges how efficient the market is. Simply, the EMH states that share prices should move randomly, adjusting fully and immediately to new and relevant information as it becomes available[6].

Anything short of an efficient assimilation of information by the market, such as gradual discounting of new information would guarantee regular patterns in share price movements.This notion of efficiency implies that a market's equilibrium conditions are such that trading decisions based solely on existing information don't yield expected returns in excess of expected equilibrium returns. That is, traders acting on available information can not out-perform each other.

Many studies have documented (Godfrey et al 1964, Fama 1965, Fama and Blume 1968, Haggerman and Richmond 1973, Kerstin 1989) that price adjustments and market processes in a dynamic context (perfect market) are described in terms of equilibrium values and oscillatory (random) movements around these values.

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5. The emergence of new information can not be predicted. One can't say when it will come nor its nature(good or bad). If one can, then it is not information. Hence information by nature should come in a random fashion, consequently making a security's value in the market vibrate randomly.

6. Arbel A. and Jaggi B." Market Information assimilation Related to extreme Daily Price Jumps". Financial Analysts Journal,Nov/Dec 1982,P.60

The power of the market in processing and interpreting new information is so high that share price movements from period-to-period offer no clue to the direction of future price movements. Researchers trying to test the hypothesis, "successive price changes are independent" have supported the assumption of independence of price movements and/or lack of a systematic pattern movement.The subscribers of this view (which has come to be known as the random walk theory), suggest that in a perfect market share prices change in a random fashion rendering prior predictions impossible (Ritchie,1983:33). Thus, the past cannot be used to predict the future in any meaningful way. To the investors,this means that any investment decision made taking cognizance of past price information , carries the relevant potential of a randomly selected purchase (or sale). The perfect market has a tendency to rule out abnormal returns.

"The EMH comes in three different flavors"[7], based on information type. The Weak Form of the hypothesis states that prices efficiently reflect all information contained in the past series of share prices. In this case it is impossible to earn superior returns simply by looking for patterns in past share prices.
The Semistrong Form of the hypothesis states that prices reflect all publicly available information. That means it is impossible to make consistently superior returns just by reading the newspaper,looking at the company's annual accounts,and so on.

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7. Fama (1970) "Efficient capital markets: A review of theory and empirical work". The Journal Of Finance May, P. 383.

The Strong Form of the hypothesis states that share prices effectively impound all available information(public and private).It tells us that inside information is hard to find because it is already revealed in current prices. This study takes issue with the first form of EMH; namely Weak form efficiency.

The notion that share price movements are characterized by the random walk hypothesis is currently a doubtful orthodoxy. Recent studies on some of the world's major and emerging stock exchange markets have discovered important "seasonal" patterns in share price movements (Parkinson 1987,Corhay et al 1987, Othman 1987, Lee 1989, Peterson 1990, Krueger 1990, Lee et al,1990). These seasonal anomalies (as they are often called) suggest an important trading strategy to the investor. Existence of discernible patterns may be used by the astute investor to predict movements and thus improve his chances for earning abnormal returns."It is a popular wall street rainbow that many chase and few catch"; that as far as history repeats itself, the strategy of "buying low and selling high" will always work well-for those who recognize the folly of how to make a million shillings in fifteen minutes (Hardy, 1987:19).

Many investors in a market such as a stock exchange buy shares for speculative purposes,hoping to get short-run profits. They believe in timing the market to buy when prices are low and sell when they are high. Speculation is therefore a major justification for investment in variable income securities. The speculator's time horizon in the market is the short-term (i.e daily, weekly or monthly time periods). This time is considered to represent potential opportunities for profit.[8]

For many investors, a share is not the discounted present value of the future dividends but instead a current dividend yield plus uncertain capital gains/losses. Speculators therefore like trading on short-run price changes wherein they expect to earn a profit higher than what could be earned by using a naive buy-and-hold strategy[9].

Zeikel (1977) defined a true speculator as one who observes the future and acts before it occurs.He must be able to search through a mass of complex and contradictory details to the significant facts. Then, like a surgeon,he must be able to operate boldly, skillfully and clearly on the basis of the facts before him.Such an investor is confronted by a number of problems and a number of choices. The task of fact finding is so difficulty in that,in the stock market the facts of any situation come to us through a curtain of human emotions.What drives prices of shares up or down is not impersonal economic forces or changing events but also human reactions to these happenings; appropriately called speculative bubbles and/or noise.

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8. Godfrey M.D.,Granger C.W.J. and Morgestern O. "Random Walk Hypothesis of Stock Market Behaviour",Kyklos,XVII 1964,P.6

9. Over the short term, the stock market is inefficient but over the long term, it sets reasonable values. For a more detailed argument see " The blue chip investment strategy" by Hard(1987).

The constant problem of the speculator or investor in view of the uncertainty of the market prophecies is how to disentangle the cold hard economic facts from the rather warm feelings of the people dealing with these facts.We have a good case for applying chaos theory in such markets. Hence, the need for an investment policy which will guide investors in choosing and timing their commitments. Should they attempt to take advantage of the major swings in the market by buying when the market appears to be at a cyclical low spot and selling when it appears to be high? Should they attempt to discover by searching out the industries and companies which have "growth" prospects and confine their investments to them? These and other policy questions could be answered easily if investors had "infinite knowledge" in the matter of forecasting share price movements.

The purpose of this study is to provide evidence on the issue of price movements through analysis of stock returns on the kenyan market. It was devoted to determining if weekly patterns existed in a sample of "blue chip" companies quoted in Kenya's Nairobi Stock Exchange Market (NSE) by testing the empirical validity of the random walk hypothesis. Given that the issue of whether prices follow a random walk or trends can only be explored empirically,it is hoped this investigation brings the evidence to bear on price movements in the Kenyan market.

THE NAIROBI STOCK EXCHANGE: a synopsis

The Nairobi stock exchange (NSE) was established in 1954. Presently it has 57 listed companies.However, dealings in 4 of these companies has been suspended resulting in 53 companies which are currently trading. These 53 companies offer a total of 67 securities made up of 49 ordinary shares, 14 preference shares and 4 loan stocks.

There are not many stock exchanges in the developing world due to lack of enabling environment, which includes developed capital markets and enlightened stock holders, among other things. Indeed, in African region excluding South Africa, the only stock exchanges are found in Kenya, Zimbabwe, Nigeria Botswana and Ghana.

A stock exchange is part of the capital market which deals with long-term funds and can be defined as an organized market where stocks and shares are issued or bought and sold through the service of stock exchange brokers; (it is a market where already issued shares and stocks are bought and sold). The NSE deals mainly in local securities (shares) and only a very small proportion of business in foreign securities through overseas agents. Currently, six stock-brokers form the membership of the NSE.They act as financial advisers for those who wish to buy or sell shares in the exchange.Transactions are advised to be of 100 shares or more. Odd lot transactions (those of a less number) are to the disadvantage of the investor owing to minimum rates of administrative charges and marketing difficulties(NSE,october,1990)

Without sounding unduly critical, an active secondary market is unfortunately lacking in Kenya at present. Active trading provides liquidity and enables investors to buy and sell shares at a price directly related to the market's assessment of its value.

A strong secondary market, therefore,gives investors confidence that they will be able to sell their securities quickly and cheaply. As a result they are more likely to invest more of their savings in long-term securities. Judging from the public share issues,it is clear that Kenyans have plenty of money for new investment.And what they need is a clear system to enable them to invest in viable ventures,while at the same time assisting the economy to grow.

It has been argued that, constraints to the development of an active capital market could, to some extent, be attributed to the structure and rules of the NSE[10]. Without a trading floor after 37 years of running this "private association of brokerage firms"(as perceived by the market, rightly or wrongly) has had limited capacity to stimulate and enhance trading activities.

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10. Dr. B.E.Kipkorir, EBS-Chairman Kenya Commercial Bank Group.Unpublished Speech, at the chief Executives' seminar organized by the NSE, on Privatization through the stock exchange, on wednesday, october 24, 1990. P.9

A stock exchange is a market where large and small investors can buy and sell shares and other securities; whose prices vary from time to time as new information hits the market. It is a moving mirror image of the excesses of man and the extremes of human optimism and pessimism;and it reflects investor expectations for the stock market as a whole and for securities of individual companies. These attitudes are the results of hope and fear,of opinions of domestic(and international) developments,of money and credit of company earnings and dividends, of politics and policies,and,most important,of prejudices based partly on facts and mostly on fancy.

Not surprisingly, there is hardly any serious analysis of financial and economic matters in the Kenyan media. For example when the price of Barclays' shares climbed to Ksh.100 and then dropped[13] to Ksh.28 there was no critical analysis in any of the papers to explain to the investors the reasons for and implications of such a dramatic change.

Everyone knows that stock market prices fluctuate, but how many investors understand what this means? And how can one take advantage of this knowledge?Investors need to be appraised of the opportunities and pitfalls of stock market investments to enable them to make more informed decisions in the use of their often scarce,financial resources[14].

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13. See DR. B.E. Kipkorir op cit,p.10

14. And indeed of the extent of protection through the operation of the compensation fund established under Capital Market Authority act(1989) to protect investors from financial losses.

To achieve the most rewarding returns, it is important for investors to manage their money in relation to basic changes in stock market prices.

NEED FOR THE STUDY

Despite the ability of many Kenyans to invest,taking a decision on which shares to invest in is not an easy task. Quite often such a decision would require an understanding of the efficiency of the market of interest. At the minimum, knowledge of the market's efficiency tells us that if the market is efficient we do not need to look for exploitable patterns in share prices because they are simply not there; otherwise the search for systematic patterns that offer a basis for performance predictions is a worthwhile exercise. Investors who follow the market want to know, "How's the market doing?" This invaluable information which is helpful in guiding investors in their trading in shares is scant and inconclusive in the part of NSE.

According to Muragu[15] who reviewed preliminary studies on the NSE by Lomas (1961), Arowolo (1971) and Munga (1974) he concluded that they did not carry out any fundamental analysis of share prices of the exchange. Runyeje (1985) studying the impact of capital gains tax on ordinary share prices reported a significant trend between 1973 and 1983. As reported by Muragu(1990), Cooper (1982) using serial correlation, runs and spectra analysis on NSE weekly indices came up with results that did not indicate consistency with the random walk hypothesis. Perhaps, the first study to employ statistical analysis on share price movements was reported by Parkinson (1987). His results in-

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15. Muragu K. "Stock market efficiency in developing countries:A case study of Nairobi Stock Exchange".Unpubished PH.D dissertation,Glasgow University,1990.

dicated that the NSE is probably not efficient as the random walk hypothesis was not a valid description of share price changes in the exchange.

This emphatic conlusion was despite insufficient data observations, some of which were extrapolated (Muragu, 1990:191).

Muragu (1990) provides,the most serious empirical work on the NSE to-date. After carrying out tests of EMH, he concluded that "with proper control over the quality of the data and the use of a large number of data observations, the random walk model can be a good description of successive price returns", in the exchange. His results gave a contrary evidence to the earlier evidence of the NSE. To the extent that the views of previous evidence are inconclusive, this indicates that many more studies would have to be carried out on this market for a strong conclusion to be made on the weak form efficiency.

One often asks,naturally[16] " to what extent can past history of a share's price be used to make meaningful predictions, concerning future prices of the share?".

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16. You are likely to ask the same question if you read" Nairobi Stocks" subheading in the Business and Finance column, especially in the Standard Newspaper, every day; for prices of quoted companies, volume of trade and number of transactions. The temptation comes to think you can almost say the price for the next day. Fortunately or unfortunately, people don't gamble with their money this way. One then wonders, how relevant are these prices for future trade purposes in the stock exchange?

Researchers trying to investigate this question by testing the random walk hypothesis, on major and emerging markets of the world, have come up with contradictory findings as indicated by literature in financial economics. This question has not received careful attention both from Kenyan academicians and business practitioners. Since conclusions drawn from the results of studies in other markets (other than the Kenyan market) can accurately be limited to such markets, this study seeks to answer the same question by use of new data; by confronting the question, "can we accept the random walk hypothesis as valid in the Kenyan scene?"

Finally and more important,since some investors use past price information to make investment decisions in the NSE market,it is therefore of interest to determine if there is empirical evidence that such strategies will be profitable.

OBJECTIVE OF THE STUDY

This study endeavored to establish the behavior of share price movements in the Nairobi stock Exchange, and therefore provides evidence of the weak form of efficient market hypothesis.

IMPORTANCE OF THE STUDY

Since there is little Kenyan work in this area, it is hoped that this research study would prove of interest to:

1.Investors;

Since many investors use past price information to make investment decisions in the stock market,it is of interest to know whether the empirical evidence herein support such strategies.

2.The NSE and Capital Market Authority(CMA);

The findings of the study add to the understanding of the nature and character of the NSE, and its status among the world stock markets.They also give an indication of the efficiency of the Kenyan market.

3.Financial Managers;

For the Kenyan financial Manager, the behavior of share price movements has obvious implications; especially,for managers who might favour equity rather than debt financing-the idea being to "catch the market while it is high". The findings of this research are likely to provide a starting point for analysis.

4.NSE Brokers and/or Professional Security Analysts;

Security analysts who play the role of investment advisers in shares are apt to benefit from the results of the study.
The study bears evidence to those who may wish to design investment guidelines to assist less informed investors,not to beat the market,because there were no harvest of superior profits to be reaped.

5. Students and Academicians;

This study adds to the body of knowledge in financial economics. Besides, the findings provide an overview of share price movements that may suggest directions for future research.

CHAPTER II

LITERATURE REVIEW

RANDOM WALK THEORY AND EMH;

For many years, finance literature has been filled with EMH dogma until recently when exceptions entered into the theory. When economists say that the security market is efficient, they mean that "information" is widely and cheaply available to investors and that all relevant and ascertainable information is already reflected in security prices. As earlier pointed out, the word "information" could mean past price information, publicly available information or private(insider) information. For the current discussion past price information, which is consistent with the simplest empirically testable efficient market model - weak form, is more in-keeping with the forgoing usage of the word "efficient market".

In an efficient market, the current price of a security is an unbiased estimate of its intrinsic value; which means that information relevant to the value of the security is reflected in the current price. A necessary condition for efficiency is that the information contained in past security price movement be reflected in the current price of the security. If this condition is met, it means that the market absorbs information with sufficient speed and absence of bias such that changes in security prices will be nearly, if not perfectly, random. The markets' power of processing and interpreting new information is so high that security price movements from period-to-period offer no clue to the direction of future price movements.

That is to say that successive changes in prices are independent of one another, unrelated and give an appearance of random movements. In security analysis such a phenomena is described as a random walk[17]. The primary reason, therefore, for the interest in the random walk hypothesis is its relation to the concept of an efficient market.

The theory of efficient markets is stated in terms of random walks (Fama,1970:389). The random walk model is a subset of the generally expected return or "fair game" model which for a weak form of an efficient market, Haggerman and Richmond(1973) expressed as:

$$E(P_{t+1} \mid P_t, P_{t-1}, P_{t-2}, \ldots, P_{t-n}) = E(P_{t+1} \mid P_t)$$

This is a weak form of the "fair game" model in the sense that the information set under consideration is limited to the set of past prices. The statement says that the next periods price (P_{t+1}) is simply conditional to information contained in the current price and we don't necessarily get better results by projecting it on the basis of information in a set of past prices.

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17. A random walk process(without drift or constant term) is represented by $y(t) = y(t-1) + u(t)$, where $u(t)$ is serially uncorrelated with constant variance. The process obeys the weaker martingale property that expected changes in the time series $y(t)$ are zero.

Fama(1970) defined a random walk as:

$f(^{R}j,t+1 \mid \theta t) = f(^{R}j,t+1);$

which means that, the return(R) on security j at time t+1 given information set θ at time t, is equal to the return you would expect without the information[18]. In other words, the sequence of past returns is of no consequence in assessing distribution of future returns. The theory of random walks says that the future path of the price level of a security is no more predictable than the path of a series of cumulated random numbers. In statistical terms the theory says that successive price changes are independent and identically distributed random variables. Most simply this implies that the series of price changes has no memory; that is,the path cannot be used to predict the future in any meaningful way. Many academics have put forward the random walk theory as an explanation of share price changes.

The wisdom behind the random walk in share (security) prices lies in EMH and it is not the vagaries of unpredictable mass psychology as suggested by Keynes nor is it a god rolling a dice or a chance demon drawing a random number as Maurice Kendall put it (Smith,1985). In an efficient market, all traders have access to the same information; and therefore current prices always reflect all relevant information.It is new information that causes price changes, with positive information pushing prices up and negative information pushing prices down.

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18. The model does not say that past information is of no value in assessing distribution of future returns, hence our loose use of terms should not cause confusion. Note also that our usage follows the efficient market literature.

But, because new information is, by definition, unpredictable (otherwise it would not be new information), we cannot predict in advance whether prices will go up or down (Smith,1985; Brealey & Myres,1988). As with the brownian motion, there is no way to tell in advance in which direction the prices will be pushed.

It is convenient to say that the stream of incoming information consisting of both independent and dependent random bits and pieces is broken down into meaningful lumps that can be classified according to their scope of impact. Through some unspecified processes of digestion and refinement, these lumps are translated into random changes in the set of anticipations that determine security prices. The reaction of these unspecified processes or what we might call psychology produces prices that appear to follow a random walk (Kiweu, 1991:11).

Godfrey et al(1964) argue that, the random walk hypothesis is clearly not intended to explain long term trends in price series. Long trends and very slow cyclical variations in price series, they say, are outside the scope of the hypothesis if, given the time horizon of the speculator in the market,they do not offer potential for stock market profits.

THEORY OF STOCK MARKET BEHAVIOUR.

The most obvious stock price movement apparent in the long-term is a general upward growth trend. This growth trend is for the most part the product of reinvested earnings and price-level inflation (Christy/Clendenin,1982). However,this underlying growth trend is often overshadowed by shorter term price movements,which are the object of the current discussion.

Two theories of stock market behaviour, in general, have been established under varying market conditions. When the conditions in the market are such that prices "fully reflect" relevant information, market prices will change in a random fashion in the short-run. The proponents of this theory of price behaviour are mostly academicians, mathematicians, statisticians and economists. The random oscillatory behaviour in security prices over time is consistent with an efficient stock market. Consequently, the adherents of this theory are those who believe in a relatively efficient market wherein stock prices adjust rapidly to new information.

Secondly, when the market does not impound news (information) into stock prices at once, say with delay or gradual adjustments, stock prices move in identifiable trends that persist. This theory,contradicts the assumptions of an efficient stock market that there are no systematic patterns to be found in stock price series. Zeikel (1977) points out that, the theory is based on the premise that, movement of new information and its proper interpretation flows from the intelligent, well informed, understanding and sophisticated segments of the market who tend to act more quickly than the less informed slower moving

segments at the other end of the spectrum. This diametrically opposing theory assumes that the market is divided into segments representing profiles of investors.

Thus, information is disseminated gradually, reaching different investors at different times. For a consensus to be achieved in the market,time is therefore needed for information to spread in the same overtone to every investor.

Obviously, this creates a sequence of stock price movements reflecting gradual discounting of new information as it moves through the investor system. It is safe to say that,in this scenario a learning lag is necessary if prices are to "fully reflect" available information. This description is relevant to those who believe in technical analysis; among them trendists, chartists, market technicians and professionals. (Phillips/Ritchie, 1983:337). These opponents of EMH seem to suggest that the "learning process" is a perfectly natural description of securities markets. Apparently their belief goes to support Treynor's (1987:51) conjecture:

> "stocks like people are concrete:
> They have histories and personalities,
> unique strengths and weaknesses."

The current discussion forms a continuing debate between those who believe in a relatively efficient market and those who believe that the explanation of EMH is not in-keeping with the popular caricature(behavior) of a stock market and that EMH has misspecified share market behaviour.

Kean (1986:61) argues that stock market prices are more the products of whims and fashion than products of a market that is exceptionally competitive and informationally well endowed.

He goes on to say that market prices are dominated by emotions of a heterogeneous crowd of investors and reflect the differing fears and guesses as well as moods, rational and irrational behaviour of investors. Hardy (1987) sees the market price of a security as a moving mirror image of the excesses of man and the extremes of human optimism and pessimism.

The price reflects investor expectations for the stock market as a whole and for the individual securities. These expectations are the results of hope and fear, of opinion of domestic and international developments of money and credit of company earnings and dividends, politics and policies and most important, of prejudice based partly on facts and mostly on fancy.

However, Demirguc-kunt and Dezhbakhsh (1990:101) note that even when market participants have rational behaviour and rational expectations, stock prices may deviate from the path determined by market information, possibly because of speculative bubbles. A further proposition was made by Sheifer and Summer (1990) that, some investors are not fully rational and their demand for risky assets (like stocks) is affected by their beliefs or sentiments that are not fully justified by fundamental news.

The above arguments suggest market conditions that are not consistent with an efficient market. On the other hand these conditions defy a precise description of price behaviour in such markets. Most generally, a market dominated by these conditions is so "noisy" that it is hard to tell what the prices reflect.Investors have different beliefs on what is really information because of noise.(Black,1986).

Consequently some trade on noise as if it were information, thus causing inefficiency in the market (if market efficiency means; prices fully reflect information).

PRIOR RESEARCH AND FINDINGS

The bulk of the evidence relating to stock price behaviour is concerned with the New York, Nikkei and London stock Exchanges,and the evidence relating to smaller and less developed stock markets is considerably thinner. The extent of the research, however, has increased in recent years, especially in emerging stock markets. Most of the studies in this area have focused on the more readily testable weak form of efficiency, that is on the randomness of share price movements. Researchers attempting to test the applicability of the random walk theory by applying a runs test, or similar statistical tools to test independence have largely supported the random walk hypothesis. Nonetheless, the evidence relating to the smaller markets is somewhat inconclusive in terms of the weak level of efficiency (Kean, 1985).

Stock-price behaviour evidence started accumulating in the middle 1950's and early 1960's (Fama, 1970). Among the early studies that have tested the random walk model, that of Maurice Kendall in 1953 is best known (Brealey & Myers, 1988). In his study of "the behaviour of stock and commodity prices"; he examined the behaviour of weekly changes in 19 indices of British industrial share prices and spot prices for cotton (New York) and wheat (Chicago). After extensive analysis of serial correlation, he was deeply disappointed in his attempt to look for regular cycles in weekly changes in prices.

He found that "each price series appeared to wander as though once a week a chance demon drew a random number and added it to the current price to determine the next week's price". His conclusion was that stock prices follow a random walk.

Similar findings were obtained by Fama (1965) in his study of the daily prices of the 30 stocks of the Dow-Jones industrial average. Fama (1965) accorded his data tests of independence, which included serial covariance, runs tests and filter techniques.The major findings of the study were that, there was no evidence of substantial linear dependence between lagged price changes or returns. In absolute terms, prices followed the independence assumption of the random walk model.

Some studies focused on the effectiveness of using certain specific trading rules designed to exploit possible systematic patterns in share price movements. One study by Alexander[19] found that abnormal returns could be earned by using certain filter techniques (the name given to a specific type of strategy) but found also that the profits disappeared when transaction costs were taken into account. Similar results were found by Fama (1965), and Fama and Blume (1966).Another trading strategy developed by levy in 1966/67 (called technical portfolio trading rules or relative strength) was tested by Jensen and Bennington (1970), and was not found to be able to out-perform a naive buy and hold strategy.

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19. Fama & Blume (1966)," Filter Rules and stock market trading",The journal of business, security prices: A supplement, January, P.227

Jensen and Bennington (1970) concluded that " with respect to the performance of Levy's 'relative strength' trading rules, the behaviour of security prices on the New York stock exchange is remarkably close to that predicted by the efficient market theories of security price behaviour".

Later contributions that lend support to the conventional view that share prices follow a random walk, also, came from Haggerman and Richmond (1973) in their OTC study of monthly bid prices obtained from the National quotations services monthly stock summary. The authors examined monthly returns of 253 securities for serial independence using serial correlation coefficients, distribution free - runs test, and the Kolmogorov - Smirnov test. The results for the last two tests unequivocally showed that the random walk hypothesis could not be rejected. Nonetheless, the serial correlation results did not support the hypothesis and were discounted for possible bias.

Kerstin (1987), in his Ph.D dissertation undertook a very comprehensive study in the Stockholm stock exchange. Using daily and monthly data he applied serial correlation, runs test and filter rules for the weak form efficiency. All the tests approved that the stockholm market was efficient in the weak form level.

Muragu (1990), in his recent study examined market efficiency on a weekly basis for the 1979-1988 period on data obtained from the Nairobi Stock Exchange. He performed EMH tests on all bid, ask and transaction prices and was unable to reject the random walk hypothesis. He concluded that " with proper data control " the random walk holds for the Nairobi Stock Exchange.

However, the random walk hypothesis has been doubted owing to the emergency of new evidence in both emerging and developed stock markets. Recent studies on the behaviour of share prices report of patterns in price series[20]. These studies reporting contrary evidence to the random walk results (referred to as anomalous evidence), have demonstrated that the movement of prices is yet an unsettled question.

Notable among these studies are for example Scholtz (1986) Ph.D dissertation on the Johannesburg Stock Exchange. He re-examined efficient market hypothesis, rational expectations hypothesis and investigated serial dependence between weekly prices in the exchange. He did this with a view of developing a model which allows for disequilibrium trading and speculation by investors.The model was able to produce a yield of 21% per annum after transaction costs compared to 15% return yield by the best technical trading rule. The results substantiated the assumption that investors can improve their investment performance by taking cognizance of the implications of both technical analysis and the efficient market hypothesis.

Othman (1987) also conducted a study of the weak form efficiency in the Kuala Lumpur stock exchange (Malaysia).

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20. There is growing literature dealing with the issue of seasonality of stock returns around the world. our brief review js meant to provide perspective, and it is, of course, not exhaustive. Since 1978 when a special edition of the journal of financial economics was devoted to anomalous findings, the flow of these studies has accelarated.

He used serial correlation tests, runs test and, for the normal distribution the Kolmogorov-Smirnov one-sample goodness of fit. Serial correlation for individual lags indicated high independence between consecutive prices and only a small percentage showed dependency. The runs test indicated a high percentage of non-randomness in prices. The normal distribution Kolmogorov test showed that price changes were not normally distributed. This departure from the weak form efficiency of the market was explained as owing to the thinness of the market.

Corhay et al (1987) by studying the New York Stock exchange (NYSE), the London Stock Exchange (LSE), Paris (PSE) and Brussels (BSE) exchanges came up with seasonal patterns in the behaviour of stock prices. The sample consisted of 1591 common shares from the four countries: 782 stocks traded on NYSE, 527 on the LSE, 112 on PSE and 170 stocks traded on BSE. Using tests based on dummy variable regression, the authors found that January mean returns were significantly different from the other months of the year for all the countries, except in the United Kingdom where April mean return was higher than the rest of the year.

Parkinson (1987) using monthly share-price-data from the NSE for the period 1974 to 1978 rejected the hypothesis of randomness as per runs test; and found some high degrees of negative correlation between share prices at succeeding month ends. The latter results were attributed to data deficiencies.

Indications of more significant levels of inefficiency have been found for other markets such as the Korean stock exchange

(Lee, 1989)and, Lockwood and Linn (1990) in relation to hourly intraday return variances of the Dow -Jones industrial average. Lee et al (1990), in their study devoted to determining if day-of-the-week patterns existed in a sample of the most important of the world's 'second-tier' stock markets such as those in Hongkong, Taiwan, Korea and Singapore found significant day -of-the-week effects in Second-teir Asian markets. Other reports could be reviewed, but their findings are similar.[21]

Explanations for seasonal characteristics of stock prices have been offered by Lee (1989), Peterson (1990) and Krueger (1990) and include: tax factors; committed or seasonal risk considerations; institutional factors; insider trading activity; seasonal and infrequent trading by individuals or institutions; thin markets; nonsynchronous trading/irrational acts by investors who often trade on noise and loose information disclosure requirements.

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21. Peterson (1990) reports that the following recent studies have reached a similar conclusion that common stock returns exhibit seasonal patterns: Rozeff and Kinney (1976), Keim (1983), Roll (1983), Chan (1986), Debondt and Thaler (1985),(1987), Ritter(1988). Others are reported to have found January effect in smaller firms : French (1980), Harrds (1986), Gibbon and Hess (1981). See also Klein (1990) for other recent studies which embrace predictable reversals in stock price movements.

CHAPTER III

RESEARCH DESIGN.

THE POPULATION;

The population of this study consisted of all the companies continuously quoted on the Nairobi Stock Exchange over the five years between January, 1986 and December, 1990[22]. Our concern here was for those companies offering ordinary shares.

SAMPLING PLAN

Purposive sampling was used in this study. A sample of ten companies was chosen for the purpose of the study. The sample consisted of market leaders i.e. "top 10 blue chip companies" (see Appendix 1) according to market capitalization on average for the five years covered by the study.

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22. This period was chosen because it provided newer data. But more appealing is the fact that it was characterized by increased volume of trade and more activity in the NSE. This positive trend in the market was attributed to the leading stocks and other good performers.

Market capitalization, which is mid-market price[23] at a particular date times the number of ordinary shares; was preferred here because it aggregated in the sample companies that are among the largest and most actively traded, in addition to being the most important in their fields.Fama (1965:46) and Krueger (1990:276) support this kind of a sample. These are the companies that make money, and so investing in their shares one expects to make money also, hence the high trading activity in their shares. More importantly, market capitalization can be justified by its ability to grade component companies that offer shares which have a fairly stable trading activity over time[24].

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23. Mid-market prices = (buyers + sellers)/2. Where buyers and sellers were quotations on the stock market price lists of 100 shares or more. Where there was only the buyers'(bid) price we added 25 cents and subtracted 25 cents where there was only the sellers (offers) price. This practice is found with NSE secretariat; otherwise some brokers like Dyer and Blair Ltd would add or subtract 50 cents as the case may be. These adjustments reflect the fact that market orders tend to occur and vary by 25 ,50 and 75 cents (Fama 1970:397).

24. According to a pilot study we undertook, it was found that grading of the most actively traded companies as per dealings varies from time to time; hence we could not justify a convinient sample for the period covered by the study. Not-withstanding the findings of that pilot study, a comparison of the above grading and companies graded by market capitalization fitted well with each other.

DATA COLLECTION

The researcher used secondary data which was gathered from the NSE secretariat. The data consisted of thursday-to-thursday bid (buyers') prices for all the ordinary shares in the sample; giving 252 observations per company. Data on cash dividends and bonus issues was also gathered for the ten equity securities from January 1986 to December 1990 inclusive. Over the period covered by the study there were no stock-splits nor rights issues. There were three main reasons for using bid prices.

First, transaction prices were not recorded in a consecutive order and therefore there was no rationale for the particular transaction price to be picked. The sequence was vital for developing a time series. Besides, transaction prices have been shown to have a strong negative serial correlation (Roll R., 1984:1128, Mendelson and Amihud, 1982:54) and more recently Lee et al (1990) persuasively argued that they poses a "built in" positive serial correlation. Second, mid-market prices (the bid-offer averages) were not used due to a possible bid/offer spread effect (West R.R. 1986:33). Third, a pilot survey conducted by the researcher showed that actual transactions occur at either the bid or close to it most of the time.

DATA ANALYSIS

The data collected was subjected to two tests. However the actual tests were not performed on the weekly bid prices themselves but on price relatives based on rate of return (Ritchie 1983:170, Parkinson 1987:106, Corhay et al 1987:51, Lee et al 1990:269). Some researchers have used a linear equation of the price changes and others the log of price relatives. Nevertheless, it has been shown that for random walk tests it makes little difference which is used (Elton/Gruber 1981:366). The variable of interest was calculated in the one-period rate of return equation:

$$R^{w}_{i,t} = \frac{(P^{w}_{i,t} - P^{w}_{i,t-1}) + D^{w}_{i,t}}{P^{w}_{i,t-1}}; \quad \text{.....Equation 1}$$

where $R^{w}_{i,t}$ = weekly return for the week "w" between intervals t and t-1 for share i; $P^{w}_{i,t}$ = bid price of share i in week t; $P^{w}_{i,t-1}$ = bid price of share i in week t-1 and $D^{w}_{i,t}$ = cash dividends and/or bonus issues payable on share i in week t and "w" is used to emphasize the point that the rate of return was computed from sequential weekly bid prices.

The return series, rather than the simple price change series was the object of primary interest for one main reason. Movement of price changes for a given share is an increasing function of the price level for the share (Fama,1965:45). The calculations of the rate of return was meant to neutralize most

of the price level effects. The above formulation was adjusted for dividends and bonus issues.It is well established that on ex-dividend weeks, *ceteris paribus*, the value of a share should fall by about the amount of the "dividend"[25]. To adjust for this depressing effect, the dividend per share was added to the first difference between the ex-dividend week and the previous week. The cases for bonus were treated as follows: if a bonus of 200% (2 for 1) occurred at week t, for a share selling at cum-bonus price (cb:P); its price theoretically should drop by:

Y=cb:P(1-1/1+200%).....Equation 2

when it goes ex-bonus. The amount "Y" was added back in the rates of return calculation for week t+1.

The following hypothesis was tested at 5% significant level:

Ho: Successive price (return) changes are random.

H1: Successive price (return) changes are non-random.

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25. Usually companies declare dividends, bonus or right issues for thei existing shareholders. Once a dividend (bonus or rights) has been declared, before the closing date of the company's register, the seller offers his shares with the dividend (bonus or rights) usually at a higher price. After the date of closure, the seller retains all the "privileges", and the market price drops theoretically by the value of the "privilege". Normally the value of a share is assumed to include an anticipation of the above "privileges" unless knowledge to the contrary is provided through the quotation "ex-" at which point the value falls.

Autocorrelation;

Serial correlation (or autocorrelation) coefficients were computed for each share, to determine the amount of serial dependence. The computations of the coefficient estimates were done using a statgraphics computer package. The primary purpose of this test was to examine if there was correlation between the past price changes and future price changes, to see whether the prices were linearly related over time. The number of periods of lag used were one-week to five-weeks, twelve and twenty four-weeks.For serial dependence of the price relatives, the correlation in all the above lags, was expected to be either zero or quite small in absolute value.

Runs Test;

In order to provide more evidence about the movement of the prices, distribution free statistics were used to eliminate the effect of extremely large observations.Specifically, the test employed was one-sample test of runs up and down; to examine the randomness of the data. Each price change from the previous week's price was classified as either a "up" (+) if it was an increase, or a "down" (-) if it was a decrease. The result was a set of pluses and minuses as follows: ++++--+. A run is a succession of one or more observations in the same category. For instance, the above series contains three runs; a run of pluses of length four,a run of minuses of length two and a run of pluses of length one.

The total number of runs (ups and downs) "R" was counted (no change positions ignored) and compared with the number expected to occur in a series of truly random numbers of the same size. For a random series, the expected number of runs was given by the formula:

$$E(R) = 1/3(2n-1) \quad \text{.....Equation 3}$$

where "n" is the number of observations. The adjacent observations(no change positions) were omitted from this calculation.As in the serial correlations, all the calculations for this test were carried out by the help of the statgraphics package.

The theoretical sampling distribution of the number of runs is approximately normal if the number of "up" or "down" runs is greater than 20 (Clark/ Schkade 1974:393). Assuming normal distribution the number of runs expected was tested against a normal distribution deviate using a two tailed test. A two-tailed probability of equalling or exceeding (Z) was computed using the above named package; which probability was then compared with 5% (0.05) significant level.

Too many or few runs in relation to the limits of rejection region were taken to indicate that the series were probably not random. This was then interpreted to mean too much correlation than expected for a randomn series.

CHAPTER 1V

RESULTS AND DISCUSSION

TESTS OF RANDOMNESS;

In this section, two main approaches to testing for randomness are followed. The first is the straight-forward application of serial correlation model and the second makes use of the theory of runs.

Throughout this section we are interested in randomness of a return series from the point of view of the investor. Principally, the main thrust in the tests will be to ascertain whether there are dependencies in the series of share returns, and thereby fail to reject the random walk hypothesis or reject it. In the event that we accept this hypothesis as valid for the NSE data the implications to the investor shall be that, theoretically, there are no dependencies in the return series that he can use to increase his expected profit. On the other hand if the random walk hypothesis is rejected, there will be dependency in the series which may offer the investor abnormal returns. The extent to which the investor may make abnormal returns is subject to investigation. However, from the behaviour of the return series we shall infer efficiency as follows: If the series displays a random walk behaviour over the five year period, this shall be taken as evidence supporting weak form efficiency of NSE. On the other hand, any departure from a random walk behavior may be the result of various factors related to the NSE market.

Some dependency (non-random behaviour) could be observed and the market still be efficient, in which case further investigation is required to conclude on inefficiency.

AUTOCORRELATION

Using the share prices presented in appendix 2 as adjusted for dividends and bonus, share returns were generated. These share returns for the sample (a total of 251 observations per company) were serially correlated. The sample serial correlation coefficients for weekly changes in the price returns were computed for each share for lag *(K)* of from 1 to 24 weeks. The results for K = 1, 2, 3, 4, 5, 12 and 24 are shown in Table 1. Serial correlation estimates that are significantly different from zero at the five percent level are indicated by an asterisk.

The sample coefficient estimates for lag 1 represent the degree of association between the previous week returns and the current week returns. Lag 4 estimates tells us whether there is any association between monthly price changes. Similarly lag 12 and 24 represent the association (correlation) between quarterly and half year price changes.

TABLE 1

WEEKLY AUTOCORRELATION COEFFICIENTS FOR LAG K = 1,2,..5, 12 & 24. (JANUARY 9, 1986 TO DECEMBER 20, 1990)

	LAG						
SHARE	1	2	3	4	5	12	24
BAT	-.08166	.21333*	.03518	.06869	-.06849	-.00858	-.02755
BAMBURI	-.04461	-.13679*	-.07038	-.01358	.00299	-.00285	.02898
BROOKE	.03673	.02034	.06089	-.00844	-.01985	-.05425	.06675
DIAMOND	.02914	-.34260*	.01765	.02619	.09659	.08183	.00847
KAKUZI	-.11255	-.16884*	.10288	-.02326	-.19039*	-.00845	.11072
KBL	.24765*	.17646*	.21005*	.18190*	.04757	-.04471	.02462
KP&L	-.06076	.09555	-.00462	-.04519	.13261*	.06493	.00897
MOTOR	.14140*	-.03168	-.06723	-.07858	.03432	.00760	-.06786
NATIONAL	.07097	.01847	.05929	.03220	-.11089	-.04948	.03099
SASINI	.06844	-.02294	.04488	.06676	-.06549	-.03141	-.05549

* Significantly different from zero at the 5% level.

All the sample serial correlation coefficients in Table 1 are quite small in absolute value. For every share the serial correlation coefficient is very close to the "true" value, zero. The largest is only -0.3426 associated with Diamond Trust. This implies that relating a fortnight's return price relative to today's return price explains $(-0.3426)^2$ or 11.74% of the variation in todays return price. This is relatively small, and not significant in this case. Dependence of such a small order of magnitude is from a practical point of view, probably unimportant to the investor. Essentially the estimates in their absolute value tend to converge to zero as expected for serial independence (randomness).

An interesting feature of Table 1 is the pattern shown by the signs of the serial correlation coefficients for all the lags.

Six out of Ten estimates for lag 1 weekly differences are positive, while in lag 2 the signs are evenly split. For lags 3, 4, 5, 12, and 24 the number of positive signs are 7/10, 5/10, 5/10, 3/10 and 7/10 respectively. In overall there seems to be no preponderance of any sign as they are about evenly split in all the lags. However, looking hard at the signs one might see a slight repetition of more positive signs.

A positive sign implies that this week's return is affected positively by last week's return. That is, a high price is followed by a higher price and a low price by a lower price. Again, a negative sign implies price reversals. The result in this case provides a further evidence that there is really no relationship between successive price returns.

The autocorrelation estimates were tested whether they are significantly different from zero at 5% level. This was done by establishing the rejection region by getting the product of 1.96 and each lag's computed standard error or 1.96*Std. error.Any estimate lying beyond this two tail "product" limit was deemed significant. Two of the coefficient estimates for lag K = 1,5 are significant at 5%, five for lag K = 2, one for lag K = 3, 4. For lag 2 five numbers are significantly larger than would be expected by chance (although three of these are negative), resulting to most of the significant estimates being found in this lag. These number of correlations are fairly high which might provide evidence in favour of a weak relationship between returns over a two-weeks time interval. This apparent relationship in this result seem to have a bearing on a security's industry. In particular, for all the significant estimates, the securities from the same industry bear the same sign.

However, the average of column 1 of the Table is 0.0295. This implies that 0.087% of the variation in this week's return price change is explained by last week's price change. Similarly for lag 2, the average is -0.01787 which means that 0.032% of the variation in this week's return price change is explained by two-week's price change.

In sum, the evidence produced by the autocorrelation test seem to indicate that successive price changes are independent. On the basis of this evidence we conclude that, for our sample data, the random walk hypothesis holds. Consequently, from the standpoint of consistency the NSE market seems to be weak form efficient. This conclusion should be regarded as tentative, however, until further results to be provided by the runs test are examined.

THE RUNS TEST

The approach to runs-testing in this part will be somewhat novel. Comparison will be done between expected and actual number of runs for all the shares. Secondly, we shall examine the percentage difference between the total actual number of runs (irrespective of whether it is up or down) and the total expected number. Thirdly, the null hypothesis (randomness) shall be tested at 5% significant level. It is important to note that in our model we have only considered runs up and down thereby ignoring no-change runs. However, the results of the latter are also presented.

Table 2 shows the total expected and actual number of runs computed. The table also shows adjacent values ignored, percentage difference between the actual and expected number of runs as proportions of the expected numbers and the two-tailed probability of equaling or exceeding (Z) for each share.

TABLE 2

TOTAL ACTUAL (R) AND EXPECTED (E) RUNS, ADJACENT VALUES IGNORED, PERCENTAGE DIFFERENCES AND TWO-TAILED PROBABILITY (Z)

SHARE	ACTUAL (R)	EXPECTED (E)	IGNORED VALUES	PERCENTAGE (R-E)/E	PROBABILITY (Z)
BAT	118	117	75	0.85	0.9284
BAMBURI	73	71.6667	143	1.86	0.8479
BROOKE	131	123	66	6.50	0.1888
DIAMOND	112	101	99	10.89	0.0421*
KAKUZI	85	79	132	7.59	0.2282
KBL	102	104.333	94	-2.24	0.7271
KP&L	91	81.6667	128	11.43	0.0570
MOTOR	95	95.6667	107	-0.70	0.9736
NATIONAL	97	95.6667	107	1.39	0.8684
SASINI	86	79	132	8.86	0.1544

* Significant at the 5% level.

From the table, for the weekly changes, the actual number of runs (R) is more than the expected number (E) in eight out of ten cases. This does not seem to agree with the results produced by the serial correlation coefficients. In Table 1, four out of ten of the first order (lag 1) serial correlation coefficients are negative. This is a serious inconsistency between these two tests.

Eight of the ten runs are greater than expected,which is fairly high if there is really no relationship. Too many runs than expected indicate a negative relationship. Thus, these eight out of ten greater-run cases are too many than could be attributed to chance. This is evidence of a small negative correlation (reversals).

This departure from the serial correlation coefficient results may have arisen owing to the no-change positions already ignored in the computation (Column 3 of Table 2)

For most purposes, however, the absolute amount of dependence in the price changes is more important than whether the dependence is positive or negative. The amount of dependence implied by the runs tests are depicted by the size of the differences between total actual and expected number of runs as presented in Column 4 of Table 2. The highest amount of dependence is 11.43 % associated with Kenya Power and Lighting (KP&L).

In general, the percentage differences between the actual and expected numbers of runs are fairly small; indicating that the dependence in successive price changes is either extremely slight or completely non-existence. However, caution is required in drawing conclusions from this result.

Probably the more relevant measure of independence is to use the two-tail significant test at 5%, whose results are presented in column 5 of Table 2. The results show that, only one share (Diamond Trust) whose price changes could not be rejected for dependence at 5% level. Except this contrary evidence all the other shares had probabilities higher than 0.05 or 5%. This implies that for nine of these companies, random behaviour in price changes could not be ruled out at 5% significant level.

In the overall, despite too many actual runs showing more runs than expected, impressive is the fact that the runs test evidence tarries with autocorrelation results. The encountered departure can be accounted for by the adjacent values ignored, which by themselves form the third category of runs.

There is virtually no evidence either from the serial correlations or from the runs tests of any dependence (non-randomness) in the weekly price changes. As far as these tests are concerned, it would seem that any dependence that exists in these series (in particular the slight departures encountered) is not strong enough to be used to make abnormal gains.In brief, there is no evidence of important dependence from an investor's point of view. On the other hand,these tests imply that the random walk model is valid for the NSE data. This is consistent with the results obtained by Muragu (1990). Again this goes to confirm that the NSE market is efficient at the weak form level.

CHAPTER V

SUMMARY AND CONCLUSIONS

CONCLUSION AND IMPLICATIONS;

In this study, the author has examined the weekly behaviour of bid price in the NSE, Kenya. The weekly behaviour of the ten "blue chip" shares selected for the study was established through the test of serial correlation and one-sample test of runs up and down.

Based on our purposive sample, the evidence indicates that weekly returns of shares traded in the Nairobi Stock Exchange are serially independent (random). The evidence presented here suggests that no important dependencies could be identified in the stock market. This conclusion is supported by both the serial and runs tests. The relationship between last week's share price and this week's, is not significantly different from zero over the five years covered by the study. At 5% significant level we were unable to reject random behaviour on the share prices, on average for the market, for both tests. Thus we must conclude that share prices in the NSE follow a random walk.

Finally, the random walk behaviour of these share prices implies that, any investment decisions (by the investor) made taking cognizance of past price information of shares in the NSE, carries the relevant potential of a randomly selected purchase (or sale).The astute investor can not improve his chances for earning abnormal returns since there are no discernible patterns he can use to predict price movements.

As per the results, no harvest of superior profits can be reaped from the NSE market. The process that generates the NSE share prices seems to imply a good deal of underlying independence. This result is consistent with the hypothesis of efficient markets whereby prices move in a random fashion. The results also compare very well with those obtainable from major and emerging stock markets of the world. Consequently, the NSE is a "weakly" efficient market. The practical argument for investor diversification is, then, very strong.

LIMITATIONS OF THE STUDY

Several limitations to this study can be noted. First, the findings are limited to the selected companies or those companies bearing the characteristics of a "blue chip". Hence the results may not be representative of companies that are among the smallest in their fields and that are not actively traded.

Second, the NSE stops trading after the second or so week of December every year for the X-mass holidays, and resumes trade around the second week of the following month. This causes a break in the series . Thus, the serial correlation in the beginning of each year reflects the association between the returns on the week of trade before and after the break; regardless of whether it is on a successive week. The same assumption was made for two weeks in which the NSE did not either trade or record the prices.

Third, the model for our distribution-free runs test could only compute two of the available three runs, up and down ignoring the no-change positions. This definitely lowers the quality of the results of the runs test obtainable. Nevertheless the effect of the ignored runs was not significant enough for the results to deviate from those obtained by autocorrelation test.

There is need to carry out further research in Kenya on daily prices and investigate if there is any dependence. Such a study is now possible given that the NSE records and keeps daily prices since January, 1991. The results will give evidence to confirm the efficiency of the market or disapprove the evidence presented here.

Evident is also the need to move into higher levels of efficiency. That is, semistrong and strong form of efficiency.

Now that the NSE has a trading floor (though rudementally) research can be carried out to examine the effects of the new trading system on the efficiency of the market.

APPENDIX 1

SAMPLE OF COMPANIES

	CODE:
B.A.T KENYA	X1
BROOKE BOND KENYA	X2
BAMBURI PORTLAND CEMENT	X10
DIAMOND TRUST OF KENYA	X5
KAKUZI	X7
KENYA BREWERIES	X3
KENYA POWER & LIGHTING	X6
MOTOR MART GROUP	X4
NATIONAL INDUSTRIAL CREDIT	X8
SASINI TEA & COFFEE	X9

Note to Appendix 1.

The code numbers against each corresponding company represent the rank of the respective company in terms of market capitalization. The same code is used to denote the companies in Appendix 2.

NOTE TO APPENDIX 2

The following notations as used in Appendix 2 are to be interpreted as follows. The X's denote the company/share concerned while the "B"'s denote the type of price used. The "B"'s represent weekly bid prices. The notation "D" represents either a cash dividend paid or a bonus issue, at the respective dates. Where these were paid at the same date the figure given is the combined effect. For example if on 20-Nov-86 BAT paid a dividend of 2/= and at the same time issued a bonus valued at 1/= ; the figure under "D" will be shown as 3.00. It is also to be remembered that the date 20-Nov-86 in our example must be the coincidental "ex-all" date (when both dividend and bonus become payable). The notation "R" represents the returns for each company calculated from the bid prices and adjusted for both the dividends and/or bonuses. The formulae used is presented under Data analysis, of chapter 111.

NSE WEEK	TRADING & DATE	BAT:Bid price,Div.&/or Bonus,& Weekly Returns. From 9/1/86 to 20/12/90 X1"B"	X1"D"	X1"R"	BROOKE:Bid price,Div. &/or Bonus,& Returns From 9/1/86 to 20/12/90 X2"B"	X2"D"	X2"R"
1	09-Jan-86	34.25			33.75		
2	16-Jan-86	34.25		0.0000	34.00		0.0074
3	23-Jan-86	34.25		0.0000	34.00		0.0000
4	30-Jan-86	34.50		0.0073	34.25		0.0074
5	06-Feb-86	34.60		0.0029	34.50		0.0073
6	13-Feb-86	34.75		0.0043	34.60		0.0029
7	20-Feb-86	34.90		0.0043	34.80		0.0058
8	27-Feb-86	35.00		0.0029	34.75		-0.0014
9	06-Mar-86	35.00		0.0000	30.00		-0.1367
10	13-Mar-86	35.00		0.0000	30.00		0.0000
11	20-Mar-86	35.00		0.0000	30.00		0.0000
12	27-Mar-86	33.00	1.75	-0.0071	28.50	1.50	0.0000
13	03-Apr-86	33.25		0.0076	28.50		0.0000
14	10-Apr-86	33.75		0.0150	28.75		0.0088
15	17-Apr-86	34.00		0.0074	28.75		0.0000
16	24-Apr-86	34.00		0.0000	28.75		0.0000
17	01-May-86	34.00		0.0000	28.75		0.0000
18	08-May-86	34.20		0.0059	28.75		0.0000
19	15-May-86	34.25		0.0015	29.00		0.0087
20	22-May-86	34.50		0.0073	29.30		0.0103
21	29-May-86	34.75		0.0072	29.75		0.0154
22	05-Jun-86	34.75		0.0000	29.75		0.0000
23	12-Jun-86	34.75		0.0000	29.75		0.0000
24	19-Jun-86	34.75		0.0000	29.75		0.0000
25	26-Jun-86	35.00		0.0072	30.25		0.0168
26	03-Jul-86	35.00		0.0000	30.25		0.0000
27	10-Jul-86	35.25		0.0071	30.75		0.0165
28	17-Jul-86	35.50		0.0071	31.30		0.0179
29	24-Jul-86	35.50		0.0000	31.50		0.0064
30	31-Jul-86	35.50		0.0000	31.75		0.0079
31	07-Aug-86	35.50		0.0000	32.00		0.0079
32	14-Aug-86	35.50		0.0000	32.50		0.0156
33	21-Aug-86	35.65		0.0042	32.50		0.0000
34	28-Aug-86	35.75		0.0028	33.00		0.0154
35	04-Sep-86	35.75		0.0000	34.00		0.0303
36	11-Sep-86	35.00	0.65	-0.0028	34.00		0.0000
37	18-Sep-86	35.00		0.0000	34.00		0.0000
38	25-Sep-86	35.00		0.0000	34.50		0.0147
39	02-Oct-86	35.25		0.0071	33.00	2.00	0.0145
40	09-Oct-86	35.25		0.0000	33.00		0.0000
41	16-Oct-86	35.25		0.0000	33.00		0.0000
42	23-Oct-86	35.35		0.0028	33.50		0.0152
43	30-Oct-86	35.50		0.0042	34.25		0.0224
44	06-Nov-86	35.80		0.0085	34.25		0.0000
45	13-Nov-86	36.00		0.0056	34.25		0.0000
46	20-Nov-86	35.50		-0.0139	34.25		0.0000
47	27-Nov-86	35.75		0.0070	34.25		0.0000
48	04-Dec-86	34.60	0.90	-0.0070	34.25		0.0000
49	11-Dec-86	34.75		0.0043	34.50		0.0073
50	18-Dec-86	34.75		0.0000	34.50		0.0000

51	08-Jan-87	34.80		0.0014	***	34.75		0.0072
52	15-Jan-87	35.00		0.0057		34.50		-0.0072
53	22-Jan-87	35.00		0.0000		34.75		0.0072
54	29-Jan-87	35.00		0.0000		34.75		0.0000
55	05-Feb-87	35.50		0.0143		35.00		0.0072
56	12-Feb-87	35.50		0.0000		35.00		0.0000
57	19-Feb-87	35.50		0.0000		35.00		0.0000
58	26-Feb-87	35.50		0.0000		35.00		0.0000
59	05-Mar-87	36.50		0.0282		36.25		0.0357
60	12-Mar-87	38.50		0.0548		37.50		0.0345
61	19-Mar-87	40.50		0.0519		38.00		0.0133
62	26-Mar-87	28.00	15.55	0.0753		34.00	5.00	0.0263
63	02-Apr-87	30.00		0.0714		34.75		0.0221
64	09-Apr-87	33.00		0.1000		34.75		0.0000
65	16-Apr-87	34.00		0.0303		34.75		0.0000
66	23-Apr-87	34.50		0.0147		34.75		0.0000
67	30-Apr-87	34.75		0.0072		34.75		0.0000
68	07-May-87	34.75		0.0000		34.75		0.0000
69	14-May-87	34.75		0.0000		36.00		0.0360
70	21-May-87	34.75		0.0000		34.75		-0.0347
71	28-May-87	35.00		0.0072		34.75		0.0000
72	04-Jun-87	35.00		0.0000		34.75		0.0000
73	11-Jun-87	35.00		0.0000		34.75		0.0000
74	18-Jun-87	35.25		0.0071		35.35		0.0173
75	25-Jun-87	35.50		0.0071		35.50		0.0042
76	02-Jul-87	36.25		0.0211		36.00		0.0141
77	09-Jul-87	36.75		0.0138		36.25		0.0069
78	16-Jul-87	37.25		0.0136		36.50		0.0069
79	23-Jul-87	37.50		0.0067		36.50		0.0000
80	30-Jul-87	38.50		0.0267		36.50		0.0000
81	06-Aug-87	39.00		0.0130		36.75		0.0068
82	13-Aug-87	39.50		0.0128		37.00		0.0068
83	20-Aug-87	39.50		0.0000		37.00		0.0000
84	27-Aug-87	39.75		0.0063		37.00		0.0000
85	03-Sep-87	39.75		0.0000		37.00		0.0000
86	10-Sep-87	39.00	0.50	-0.0063		37.00		0.0000
87	17-Sep-87	39.00		0.0000		37.00		0.0000
88	24-Sep-87	39.00		0.0000		34.00	1.00	-0.0541
89	01-Oct-87	39.00		0.0000		34.00		0.0000
90	08-Oct-87	39.00		0.0000		34.25		0.0074
91	15-Oct-87	39.00		0.0000		34.50		0.0073
92	22-Oct-87	39.00		0.0000		34.50		0.0000
93	29-Oct-87	39.00		0.0000		34.75		0.0072
94	05-Nov-87	39.00		0.0000		34.75		0.0000
95	12-Nov-87	39.25		0.0064		34.25		-0.0144
96	19-Nov-87	39.00		-0.0064		35.00		0.0219
97	26-Nov-87	39.00		0.0000		35.50		0.0143
98	03-Dec-87	39.00	0.75	0.0192		35.50		0.0000
99	10-Dec-87	39.25		0.0064		35.75		0.0070
100	17-Dec-87	39.25		0.0000		35.75		0.0000
101	24-Dec-87	39.50		0.0064		36.00		0.0070

102	07-Jan-88	50.00		0.2658 **	36.00		0.0000
103	14-Jan-88	40.50		-0.1900	36.00		0.0000
104	21-Jan-88	40.75		0.0062	36.75		0.0208
105	28-Jan-88	41.00		0.0061	37.00		0.0068
106	04-Feb-88	41.00		0.0000	37.00		0.0000
107	11-Feb-88	41.50		0.0122	37.50		0.0135
108	18-Feb-88	42.00		0.0120	38.00		0.0133
109	25-Feb-88	42.50		0.0119	38.00		0.0000
110	03-Mar-88	40.00	1.95	-0.0129	38.00		0.0000
111	10-Mar-88	40.00		0.0000	39.50		0.0395
112	17-Mar-88	40.00		0.0000	40.00		0.0127
113	24-Mar-88	40.75		0.0188	35.75	4.00	-0.0063
114	31-Mar-88	40.75		0.0000	36.50		0.0210
115	07-Apr-88	41.00		0.0061	36.75		0.0068
116	14-Apr-88	41.00		0.0000	37.00		0.0068
117	21-Apr-88	41.00		0.0000	37.00		0.0000
118	28-Apr-88	41.00		0.0000	37.00		0.0000
119	05-May-88	41.00		0.0000	37.00		0.0000
120	12-May-88	41.00		0.0000	37.00		0.0000
121	19-May-88	41.50		0.0122	38.00		0.0270
122	26-May-88	41.50		0.0000	38.00		0.0000
123	02-Jun-88	41.50		0.0000	38.25		0.0066
124	09-Jun-88	41.50		0.0000	38.50		0.0065
125	16-Jun-88	41.50		0.0000	38.60		0.0026
126	23-Jun-88	41.50		0.0000	38.60		0.0000
127	30-Jun-88	41.50		0.0000	39.00		0.0104
128	07-Jul-88	41.50		0.0000	39.60		0.0154
129	14-Jul-88	41.50		0.0000	39.65		0.0013
130	21-Jul-88	41.50		0.0000	40.00		0.0088
131	28-Jul-88	41.50		0.0000	40.00		0.0000
132	04-Aug-88	41.50		0.0000	40.25		0.0063
133	11-Aug-88	41.50		0.0000	40.25		0.0000
134	18-Aug-88	41.50		0.0000	40.25		0.0000
135	25-Aug-88	41.50		0.0000	40.25		0.0000
136	01-Sep-88	41.50		0.0000	40.25		0.0000
137	08-Sep-88	40.00	0.55	-0.0229	40.50		0.0062
138	15-Sep-88	40.00		0.0000	40.50		0.0000
139	22-Sep-88	40.00		0.0000	39.75	1.00	0.0062
140	29-Sep-88	40.00		0.0000	40.00		0.0063
141	06-Oct-88	40.00		0.0000	40.00		0.0000
142	13-Oct-88	40.00		0.0000	40.75		0.0188
143	20-Oct-88	40.00		0.0000	41.00		0.0061
144	27-Oct-88	40.25		0.0063	41.25		0.0061
145	03-Nov-88	41.00		0.0186	41.50		0.0061
146	10-Nov-88	41.25		0.0061	40.50		-0.0241
147	17-Nov-88	41.75		0.0121	41.50		0.0247
148	24-Nov-88	42.50		0.0180	41.50		0.0000
149	01-Dec-88	42.50		0.0000	42.50		0.0241
150	08-Dec-88	41.50	0.85	-0.0035	42.50		0.0000
151	15-Dec-88	41.50		0.0000	42.50		0.0000
152	22-Dec-88	41.50		0.0000	42.50		0.0000

204	18-Jan-90	45.50		0.0111 **	45.00		0.0000
205	25-Jan-90	45.60		0.0022	45.25		0.0056
206	01-Feb-90	46.25		0.0143	45.50		0.0055
207	08-Feb-90	46.50		0.0054	45.50		0.0000
208	15-Feb-90	46.50		0.0000	45.50		0.0000
209	22-Feb-90	55.00		0.1828	46.50		0.0220
210	01-Mar-90	60.00		0.0909	47.50		0.0215
211	08-Mar-90	67.00		0.1167	47.50		0.0000
212	15-Mar-90	60.00	5.00	-0.0299	48.00		0.0105
213	22-Mar-90	65.00		0.0833	44.00	4.50	0.0104
214	29-Mar-90	60.00		-0.0769	44.00		0.0000
215	05-Apr-90	60.25		0.0042	44.50		0.0114
216	12-Apr-90	60.50		0.0041	44.50		0.0000
217	19-Apr-90	60.25		-0.0041	44.50		0.0000
218	26-Apr-90	60.75		0.0083	44.50		0.0000
219	03-May-90	61.25		0.0082	44.00		-0.0112
220	10-May-90	62.50		0.0204	44.50		0.0114
221	17-May-90	62.75		0.0040	44.50		0.0000
222	24-May-90	63.00		0.0040	44.50		0.0000
223	31-May-90	63.25		0.0040	44.50		0.0000
224	07-Jun-90	65.50		0.0356	44.50		0.0000
225	14-Jun-90	66.75		0.0191	45.00		0.0112
226	21-Jun-90	67.00		0.0037	45.25		0.0056
227	28-Jun-90	67.25		0.0037	45.50		0.0055
228	05-Jul-90	67.25		0.0000	45.50		0.0000
229	12-Jul-90	67.30		0.0007	45.75		0.0055
230	19-Jul-90	67.00		-0.0045	45.75		0.0000
231	26-Jul-90	67.00		0.0000	45.75		0.0000
232	02-Aug-90	67.00		0.0000	45.80		0.0011
233	09-Aug-90	67.00		0.0000	46.00		0.0044
234	16-Aug-90	67.00		0.0000	46.50		0.0109
235	23-Aug-90	67.00		0.0000	47.00		0.0108
236	30-Aug-90	67.00		0.0000	47.00		0.0000
237	06-Sep-90	67.00	0.65	0.0097	48.00		0.0213
238	13-Sep-90	67.00		0.0000	48.00		0.0000
239	20-Sep-90	67.00		0.0000	48.25		0.0052
240	27-Sep-90	67.50		0.0075	46.00	1.50	-0.0155
241	04-Oct-90	68.00		0.0074	46.00		0.0000
242	11-Oct-90	68.00		0.0000	46.75		0.0163
243	18-Oct-90	68.00		0.0000	46.75		0.0000
244	25-Oct-90	68.50		0.0074	48.50		0.0374
245	01-Nov-90	70.00		0.0219	49.00		0.0103
246	08-Nov-90	70.00		0.0000	49.00		0.0000
247	15-Nov-90	72.50		0.0357	49.00		0.0000
248	22-Nov-90	72.50		0.0000	49.00		0.0000
249	29-Nov-90	72.50		0.0000	49.00		0.0000
250	06-Dec-90	71.50	1.20	0.0028	49.00		0.0000
251	13-Dec-90	71.50		0.0000	49.50		0.0102
252	20-Dec-90	71.50		0.0000	49.50		0.0000

NSE WEEK	TRADING & DATE	KBL:Bid price,Div.&/or Bonus, & weekly Returns. From 9/1/86 to 20/12/90 X3"B"	X3"D"	X3"R"	MOTOR:Bid price,Div. &/or Bonus,& Returns. From 9/1/86 to 20/12/90 X4"B"	X4"D"	X4"R"
1	09-Jan-86	15.00			5.00		
2	16-Jan-86	15.50		0.0333	5.00		0.0000
3	23-Jan-86	15.75		0.0161	5.00		0.0000
4	30-Jan-86	16.20		0.0286	5.00		0.0000
5	06-Feb-86	16.65		0.0278	5.25		0.0500
6	13-Feb-86	17.00		0.0210	4.50	0.75	0.0000
7	20-Feb-86	17.25		0.0147	4.75		0.0556
8	27-Feb-86	18.00		0.0435	5.00		0.0526
9	06-Mar-86	18.00		0.0000	5.00		0.0000
10	13-Mar-86	18.10		0.0056	5.25		0.0500
11	20-Mar-86	18.25		0.0083	5.25		0.0000
12	27-Mar-86	18.35		0.0055	5.25		0.0000
13	03-Apr-86	18.35		0.0000	5.25		0.0000
14	10-Apr-86	18.50		0.0082	5.25		0.0000
15	17-Apr-86	18.00	0.50	0.0000	5.25		0.0000
16	24-Apr-86	18.00		0.0000	5.25		0.0000
17	01-May-86	18.00		0.0000	5.25		0.0000
18	08-May-86	18.00		0.0000	5.25		0.0000
19	15-May-86	18.25		0.0139	5.25		0.0000
20	22-May-86	18.60		0.0192	5.25		0.0000
21	29-May-86	18.75		0.0081	5.25		0.0000
22	05-Jun-86	19.00		0.0133	5.25		0.0000
23	12-Jun-86	19.00		0.0000	5.25		0.0000
24	19-Jun-86	19.50		0.0263	5.25		0.0000
25	26-Jun-86	19.60		0.0051	5.25		0.0000
26	03-Jul-86	19.75		0.0077	5.25		0.0000
27	10-Jul-86	20.00		0.0127	5.50		0.0476
28	17-Jul-86	20.00		0.0000	5.75		0.0455
29	24-Jul-86	20.00		0.0000	6.00		0.0435
30	31-Jul-86	20.50		0.0250	6.00		0.0000
31	07-Aug-86	20.50		0.0000	5.75		-0.0417
32	14-Aug-86	20.75		0.0122	5.25		-0.0870
33	21-Aug-86	21.40		0.0313	5.55		0.0571
34	28-Aug-86	22.00		0.0280	5.75		0.0360
35	04-Sep-86	22.50		0.0227	5.75		0.0000
36	11-Sep-86	23.25		0.0333	5.75		0.0000
37	18-Sep-86	24.50		0.0538	5.75		0.0000
38	25-Sep-86	26.75		0.0918	6.00		0.0435
39	02-Oct-86	27.00		0.0093	6.00		0.0000
40	09-Oct-86	27.00		0.0000	6.00		0.0000
41	16-Oct-86	27.00		0.0000	6.00		0.0000
42	23-Oct-86	27.00		0.0000	6.00		0.0000
43	30-Oct-86	27.00		0.0000	6.00		0.0000
44	06-Nov-86	27.25		0.0093	6.00		0.0000
45	13-Nov-86	28.00		0.0275	6.00		0.0000
46	20-Nov-86	20.00	6.17	-0.0654	6.00		0.0000
47	27-Nov-86	20.00		0.0000	6.00		0.0000
48	04-Dec-86	20.00		0.0000	6.00		0.0000
49	11-Dec-86	20.00		0.0000	6.00		0.0000
50	18-Dec-86	20.00		0.0000	6.00		0.0000

51	08-Jan-87	20.25		0.0125	6.00		0.0000 ***
52	15-Jan-87	20.75		0.0247	6.00		0.0000
53	22-Jan-87	21.75		0.0482	6.00		0.0000
54	29-Jan-87	22.50		0.0345	6.00		0.0000
55	05-Feb-87	23.00		0.0222	6.00		0.0000
56	12-Feb-87	23.00		0.0000	6.00		0.0000
57	19-Feb-87	24.00		0.0435	5.00	0.90	-0.0167
58	26-Feb-87	24.00		0.0000	5.50		0.1000
59	05-Mar-87	24.00		0.0000	5.75		0.0455
60	12-Mar-87	24.00		0.0000	6.00		0.0435
61	19-Mar-87	24.00		0.0000	6.00		0.0000
62	26-Mar-87	24.00		0.0000	6.00		0.0000
63	02-Apr-87	24.25		0.0104	6.00		0.0000
64	09-Apr-87	24.50		0.0103	6.25		0.0417
65	16-Apr-87	24.00	0.50	0.0000	6.50		0.0400
66	23-Apr-87	24.00		0.0000	6.50		0.0000
67	30-Apr-87	24.00		0.0000	6.50		0.0000
68	07-May-87	24.00		0.0000	6.60		0.0154
69	14-May-87	24.00		0.0000	6.75		0.0227
70	21-May-87	24.25		0.0104	6.75		0.0000
71	28-May-87	24.50		0.0103	6.75		0.0000
72	04-Jun-87	25.00		0.0204	6.75		0.0000
73	11-Jun-87	25.00		0.0000	6.75		0.0000
74	18-Jun-87	25.00		0.0000	6.75		0.0000
75	25-Jun-87	25.00		0.0000	6.75		0.0000
76	02-Jul-87	25.00		0.0000	6.75		0.0000
77	09-Jul-87	25.00		0.0000	6.75		0.0000
78	16-Jul-87	25.00		0.0000	6.75		0.0000
79	23-Jul-87	25.00		0.0000	6.75		0.0000
80	30-Jul-87	25.00		0.0000	6.75		0.0000
81	06-Aug-87	25.00		0.0000	6.75		0.0000
82	13-Aug-87	25.00		0.0000	6.75		0.0000
83	20-Aug-87	25.00		0.0000	6.75		0.0000
84	27-Aug-87	25.00		0.0000	6.75		0.0000
85	03-Sep-87	25.50		0.0200	6.75		0.0000
86	10-Sep-87	25.75		0.0098	6.75		0.0000
87	17-Sep-87	26.00		0.0097	6.75		0.0000
88	24-Sep-87	26.00		0.0000	7.50		0.1111
89	01-Oct-87	26.00		0.0000	7.75		0.0333
90	08-Oct-87	26.00		0.0000	7.75		0.0000
91	15-Oct-87	26.00		0.0000	7.75		0.0000
92	22-Oct-87	26.00		0.0000	7.75		0.0000
93	29-Oct-87	26.50		0.0192	8.00		0.0323
94	05-Nov-87	26.50		0.0000	8.00		0.0000
95	12-Nov-87	26.75		0.0094	8.00		0.0000
96	19-Nov-87	25.25	1.50	0.0000	8.25		0.0313
97	26-Nov-87	26.00		0.0297	8.50		0.0303
98	03-Dec-87	26.25		0.0096	9.25		0.0882
99	10-Dec-87	26.00		-0.0095	9.75		0.0541
100	17-Dec-87	26.00		0.0000	10.00		0.0256
101	24-Dec-87	26.00		0.0000	10.00		0.0000

102	07-Jan-88	26.00		0.0000	10.00		0.0000 **
103	14-Jan-88	26.00		0.0000	10.00		0.0000
104	21-Jan-88	26.00		0.0000	10.25		0.0250
105	28-Jan-88	27.25		0.0481	10.25		0.0000
106	04-Feb-88	27.50		0.0092	10.50		0.0244
107	11-Feb-88	27.50		0.0000	10.75		0.0238
108	18-Feb-88	27.50		0.0000	11.25		0.0465
109	25-Feb-88	27.50		0.0000	12.00		0.0667
110	03-Mar-88	27.50		0.0000	10.00	1.30	-0.0583
111	10-Mar-88	28.00		0.0182	10.00		0.0000
112	17-Mar-88	28.50		0.0179	10.10		0.0100
113	24-Mar-88	28.75		0.0088	10.25		0.0149
114	31-Mar-88	28.75		0.0000	10.25		0.0000
115	07-Apr-88	29.00		0.0087	10.25		0.0000
116	14-Apr-88	29.00		0.0000	10.25		0.0000
117	21-Apr-88	27.50	0.50	-0.0345	10.50		0.0244
118	28-Apr-88	28.00		0.0182	14.00		0.3333
119	05-May-88	28.00		0.0000	14.00		0.0000
120	12-May-88	28.50		0.0179	14.00		0.0000
121	19-May-88	28.50		0.0000	14.00		0.0000
122	26-May-88	28.50		0.0000	14.00		0.0000
123	02-Jun-88	28.50		0.0000	14.00		0.0000
124	09-Jun-88	28.00		-0.0175	14.00		0.0000
125	16-Jun-88	28.00		0.0000	14.00		0.0000
126	23-Jun-88	28.00		0.0000	14.00		0.0000
127	30-Jun-88	28.00		0.0000	14.00		0.0000
128	07-Jul-88	28.25		0.0089	14.00		0.0000
129	14-Jul-88	28.50		0.0088	14.25		0.0179
130	21-Jul-88	28.60		0.0035	14.35		0.0070
131	28-Jul-88	28.80		0.0070	14.50		0.0105
132	04-Aug-88	29.00		0.0069	14.50		0.0000
133	11-Aug-88	29.00		0.0000	14.50		0.0000
134	18-Aug-88	29.00		0.0000	14.50		0.0000
135	25-Aug-88	29.00		0.0000	14.50		0.0000
136	01-Sep-88	29.25		0.0086	15.00		0.0345
137	08-Sep-88	29.00		-0.0085	15.50		0.0333
138	15-Sep-88	29.00		0.0000	16.00		0.0323
139	22-Sep-88	29.00		0.0000	17.75		0.1094
140	29-Sep-88	29.00		0.0000	19.00		0.0704
141	06-Oct-88	29.00		0.0000	19.00		0.0000
142	13-Oct-88	29.00		0.0000	19.00		0.0000
143	20-Oct-88	29.00		0.0000	19.00		0.0000
144	27-Oct-88	29.00		0.0000	19.25		0.0132
145	03-Nov-88	29.00		0.0000	19.50		0.0130
146	10-Nov-88	29.25		0.0086	19.75		0.0128
147	17-Nov-88	27.50	1.50	-0.0085	19.75		0.0000
148	24-Nov-88	27.50		0.0000	19.75		0.0000
149	01-Dec-88	27.50		0.0000	19.75		0.0000
150	08-Dec-88	27.50		0.0000	21.00		0.0633
151	15-Dec-88	27.50		0.0000	22.50		0.0714
152	22-Dec-88	27.50		0.0000	23.00		0.0222

153	05-Jan-89	27.75		0.0091	23.50		0.0217	**
154	12-Jan-89	27.75		0.0000	23.75		0.0106	
155	19-Jan-89	27.75		0.0000	23.75		0.0000	
156	26-Jan-89	27.75		0.0000	23.75		0.0000	
157	02-Feb-89	27.75		0.0000	24.00		0.0105	
158	09-Feb-89	27.75		0.0000	24.25		0.0104	
159	16-Feb-89	27.75		0.0000	24.25		0.0000	
160	23-Feb-89	27.85		0.0036	24.50		0.0103	
161	02-Mar-89	27.85		0.0000	22.50	0.20	-0.0735	
162	09-Mar-89	27.85		0.0000	22.60		0.0044	
163	16-Mar-89	28.00		0.0054	22.65		0.0022	
164	23-Mar-89	28.00		0.0000	22.75		0.0044	
165	30-Mar-89	28.00		0.0000	24.00		0.0549	
166	06-Apr-89	28.00		0.0000	24.00		0.0000	
167	13-Apr-89	28.00		0.0000	22.50		-0.0625	
168	20-Apr-89	27.00	0.50	-0.0179	22.50		0.0000	
169	27-Apr-89	27.00		0.0000	22.50		0.0000	
170	04-May-89	27.50		0.0185	23.00		0.0222	
171	11-May-89	27.50		0.0000	23.50		0.0217	
172	18-May-89	27.50		0.0000	23.50		0.0000	
173	25-May-89	27.50		0.0000	23.50		0.0000	
174	01-Jun-89	27.50		0.0000	23.50		0.0000	
175	08-Jun-89	27.75		0.0091	23.75		0.0106	
176	15-Jun-89	27.75		0.0000	23.75		0.0000	
177	22-Jun-89	27.75		0.0000	23.50		-0.0105	
178	29-Jun-89	27.75		0.0000	23.50		0.0000	
179	06-Jul-89	27.75		0.0000	23.50		0.0000	
180	13-Jul-89	27.50		-0.0090	23.50		0.0000	
181	20-Jul-89	27.50		0.0000	24.00		0.0213	
182	27-Jul-89	27.25		-0.0091	24.00		0.0000	
183	03-Aug-89	27.00		-0.0092	24.00		0.0000	
184	10-Aug-89	27.75		0.0278	24.00		0.0000	
185	17-Aug-89	27.00		-0.0270	24.50		0.0208	
186	24-Aug-89	27.00		0.0000	24.50		0.0000	
187	31-Aug-89	27.00		0.0000	25.00		0.0204	
188	07-Sep-89	27.00		0.0000	25.50		0.0200	
189	14-Sep-89	26.00		-0.0370	25.50		0.0000	
190	21-Sep-89	26.00		0.0000	25.50		0.0000	
191	28-Sep-89	26.00		0.0000	25.75		0.0098	
192	05-Oct-89	26.10		0.0038	26.00		0.0097	
193	12-Oct-89	26.10		0.0000	26.00		0.0000	
194	19-Oct-89	26.10		0.0000	26.50		0.0192	
195	26-Oct-89	25.25		-0.0326	27.00		0.0189	
196	02-Nov-89	25.30		0.0020	27.50		0.0185	
197	09-Nov-89	25.30		0.0000	27.50		0.0000	
198	16-Nov-89	23.50	1.50	-0.0119	27.50		0.0000	
199	23-Nov-89	23.00		-0.0213	28.00		0.0182	
200	30-Nov-89	23.00		0.0000	28.50		0.0179	
201	07-Dec-89	23.50		0.0217	28.75		0.0088	
202	14-Dec-89	23.00		-0.0213	30.00		0.0435	
203	21-Dec-89	22.00		-0.0435	30.00		0.0000	

204	18-Jan-90	22.00		0.0000	30.00		0.0000 **
205	25-Jan-90	22.00		0.0000	30.00		0.0000
206	01-Feb-90	22.10		0.0045	31.00		0.0333
207	08-Feb-90	22.10		0.0000	31.50		0.0161
208	15-Feb-90	22.00		-0.0045	31.50		0.0000
209	22-Feb-90	22.00		0.0000	32.50		0.0317
210	01-Mar-90	22.50		0.0227	29.50	2.69	-0.0095
211	08-Mar-90	23.00		0.0222	29.50		0.0000
212	15-Mar-90	23.25		0.0109	29.50		0.0000
213	22-Mar-90	23.50		0.0108	30.00		0.0169
214	29-Mar-90	23.50		0.0000	30.50		0.0167
215	05-Apr-90	23.75		0.0106	30.50		0.0000
216	12-Apr-90	24.00		0.0105	31.25		0.0246
217	19-Apr-90	23.50	0.50	0.0000	31.50		0.0080
218	26-Apr-90	23.50		0.0000	31.50		0.0000
219	03-May-90	23.50		0.0000	31.50		0.0000
220	10-May-90	23.50		0.0000	31.50		0.0000
221	17-May-90	23.50		0.0000	31.50		0.0000
222	24-May-90	23.50		0.0000	31.50		0.0000
223	31-May-90	23.50		0.0000	31.50		0.0000
224	07-Jun-90	23.75		0.0106	31.00		-0.0159
225	14-Jun-90	24.00		0.0105	31.75		0.0242
226	21-Jun-90	24.00		0.0000	32.00		0.0079
227	28-Jun-90	23.50		-0.0208	32.60		0.0188
228	05-Jul-90	23.50		0.0000	33.00		0.0123
229	12-Jul-90	23.50		0.0000	33.00		0.0000
230	19-Jul-90	23.00		-0.0213	33.25		0.0076
231	26-Jul-90	23.00		0.0000	33.50		0.0075
232	02-Aug-90	22.00		-0.0435	33.50		0.0000
233	09-Aug-90	21.00		-0.0455	33.50		0.0000
234	16-Aug-90	21.00		0.0000	34.00		0.0149
235	23-Aug-90	21.00		0.0000	34.00		0.0000
236	30-Aug-90	20.00		-0.0476	34.00		0.0000
237	06-Sep-90	21.00		0.0500	34.00		0.0000
238	13-Sep-90	21.25		0.0119	34.00		0.0000
239	20-Sep-90	21.25		0.0000	34.00		0.0000
240	27-Sep-90	21.00		-0.0118	34.00		0.0000
241	04-Oct-90	21.00		0.0000	34.00		0.0000
242	11-Oct-90	21.00		0.0000	34.00		0.0000
243	18-Oct-90	21.00		0.0000	34.00		0.0000
244	25-Oct-90	21.00		0.0000	35.00		0.0294
245	01-Nov-90	21.00		0.0000	35.50		0.0143
246	08-Nov-90	21.00		0.0000	35.00		-0.0141
247	15-Nov-90	21.00		0.0000	35.00		0.0000
248	22-Nov-90	21.00		0.0000	35.00		0.0000
249	29-Nov-90	19.00	0.50	-0.0714	36.00		0.0286
250	06-Dec-90	19.00		0.0000	36.50		0.0139
251	13-Dec-90	19.00		0.0000	36.50		0.0000
252	20-Dec-90	19.00		0.0000	38.00		0.0411

NSE WEEK	TRADING & DATE	DIAMOND:Bid price,Div. &/or Bonus,& Returns. From 9/1/86 to 20/1/90 X5"B"	X5"D"	X5"R"	KP&L: Bid price, Div. &/or Bonus, & Returns. From 9/1/86 to 20/1/90 X6"B"	X6"D"	X6"R"
1	09-Jan-86	15.75			16.35		
2	16-Jan-86	16.00		0.0159	16.50		0.0092
3	23-Jan-86	16.25		0.0156	16.50		0.0000
4	30-Jan-86	16.25		0.0000	16.50		0.0000
5	06-Feb-86	16.30		0.0031	16.50		0.0000
6	13-Feb-86	16.60		0.0184	16.75		0.0152
7	20-Feb-86	16.80		0.0120	16.85		0.0060
8	27-Feb-86	17.00		0.0119	17.00		0.0089
9	06-Mar-86	17.00	0.90	0.0529	17.00		0.0000
10	13-Mar-86	17.00		0.0000	17.10		0.0059
11	20-Mar-86	17.00		0.0000	17.25		0.0088
12	27-Mar-86	18.00		0.0588	18.00		0.0435
13	03-Apr-86	18.00		0.0000	18.50		0.0278
14	10-Apr-86	18.50		0.0278	19.50		0.0541
15	17-Apr-86	18.75		0.0135	17.60	0.65	-0.0641
16	24-Apr-86	18.75		0.0000	17.75		0.0085
17	01-May-86	19.00		0.0133	17.75		0.0000
18	08-May-86	19.10		0.0053	18.00		0.0141
19	15-May-86	19.35		0.0131	19.00		0.0556
20	22-May-86	19.50		0.0078	18.50		-0.0263
21	29-May-86	19.50		0.0000	19.00		0.0270
22	05-Jun-86	14.50		-0.2564	19.00		0.0000
23	12-Jun-86	14.50		0.0000	19.00		0.0000
24	19-Jun-86	14.75	3.62	0.2669	19.00		0.0000
25	26-Jun-86	14.75		0.0000	19.25		0.0132
26	03-Jul-86	14.25	0.50	0.0000	19.50		0.0130
27	10-Jul-86	14.50		0.0175	19.50		0.0000
28	17-Jul-86	14.75		0.0172	19.50		0.0000
29	24-Jul-86	15.75		0.0678	19.50		0.0000
30	31-Jul-86	15.75		0.0000	19.75		0.0128
31	07-Aug-86	15.75		0.0000	19.75		0.0000
32	14-Aug-86	15.75		0.0000	19.75		0.0000
33	21-Aug-86	16.00		0.0159	19.75		0.0000
34	28-Aug-86	16.15		0.0094	19.75		0.0000
35	04-Sep-86	16.50		0.0217	20.00		0.0127
36	11-Sep-86	16.50		0.0000	20.00		0.0000
37	18-Sep-86	16.75		0.0152	20.50		0.0250
38	25-Sep-86	17.50		0.0448	21.75		0.0610
39	02-Oct-86	18.25		0.0429	22.25		0.0230
40	09-Oct-86	18.25		0.0000	22.75		0.0225
41	16-Oct-86	18.60		0.0192	22.75		0.0000
42	23-Oct-86	18.80		0.0108	23.00		0.0110
43	30-Oct-86	18.80		0.0000	23.50		0.0217
44	06-Nov-86	19.00		0.0106	23.75		0.0106
45	13-Nov-86	19.25		0.0132	24.00		0.0105
46	20-Nov-86	19.25		0.0000	24.00		0.0000
47	27-Nov-86	19.50		0.0130	24.00		0.0000
48	04-Dec-86	19.50		0.0000	24.00		0.0000
49	11-Dec-86	19.00		-0.0256	24.00		0.0000
50	18-Dec-86	19.50		0.0263	24.50		0.0208

51	08-Jan-87	19.50		0.0000	***	24.50		0.0000 ***
52	15-Jan-87	19.50		0.0000		24.75		0.0102
53	22-Jan-87	19.75		0.0128		24.75		0.0000
54	29-Jan-87	20.00		0.0127		25.00		0.0101
55	05-Feb-87	20.50		0.0250		25.25		0.0100
56	12-Feb-87	20.75		0.0122		25.75		0.0198
57	19-Feb-87	21.25		0.0241		25.80		0.0019
58	26-Feb-87	21.50		0.0118		25.90		0.0039
59	05-Mar-87	20.50	0.90	-0.0047		26.00		0.0039
60	12-Mar-87	20.50		0.0000		26.00		0.0000
61	19-Mar-87	20.75		0.0122		26.00		0.0000
62	26-Mar-87	21.00		0.0120		26.00		0.0000
63	02-Apr-87	21.00		0.0000		26.25		0.0096
64	09-Apr-87	21.00		0.0000		26.50		0.0095
65	16-Apr-87	21.00		0.0000		26.50		0.0000
66	23-Apr-87	21.00		0.0000		26.50		0.0000
67	30-Apr-87	21.50		0.0238		26.50		0.0000
68	07-May-87	21.75		0.0116		26.50		0.0000
69	14-May-87	21.75		0.0000		25.00	1.30	-0.0075
70	21-May-87	22.00		0.0115		25.00		0.0000
71	28-May-87	22.00		0.0000		25.00		0.0000
72	04-Jun-87	22.50		0.0227		25.25		0.0100
73	11-Jun-87	22.50		0.0000		25.75		0.0198
74	18-Jun-87	22.50		0.0000		25.75		0.0000
75	25-Jun-87	22.75		0.0111		26.00		0.0097
76	02-Jul-87	22.75		0.0000		26.50		0.0192
77	09-Jul-87	23.25		0.0220		26.75		0.0094
78	16-Jul-87	23.50		0.0108		27.50		0.0280
79	23-Jul-87	23.50		0.0000		27.50		0.0000
80	30-Jul-87	23.55		0.0021		28.50		0.0364
81	06-Aug-87	23.75		0.0085		29.00		0.0175
82	13-Aug-87	23.50	0.40	0.0063		29.00		0.0000
83	20-Aug-87	23.60		0.0043		29.00		0.0000
84	27-Aug-87	24.25		0.0275		29.25		0.0086
85	03-Sep-87	24.75		0.0206		29.25		0.0000
86	10-Sep-87	25.00		0.0101		29.50		0.0085
87	17-Sep-87	25.00		0.0000		29.75		0.0085
88	24-Sep-87	25.00		0.0000		29.75		0.0000
89	01-Oct-87	25.00		0.0000		30.00		0.0084
90	08-Oct-87	25.50		0.0200		30.50		0.0167
91	15-Oct-87	26.00		0.0196		30.50		0.0000
92	22-Oct-87	26.00		0.0000		30.50		0.0000
93	29-Oct-87	26.00		0.0000		30.50		0.0000
94	05-Nov-87	26.00		0.0000		30.50		0.0000
95	12-Nov-87	26.00		0.0000		30.25		-0.0082
96	19-Nov-87	26.25		0.0096		30.75		0.0165
97	26-Nov-87	26.25		0.0000		30.75		0.0000
98	03-Dec-87	26.50		0.0095		30.75		0.0000
99	10-Dec-87	26.50		0.0000		30.75		0.0000
100	17-Dec-87	26.50		0.0000		30.75		0.0000
101	24-Dec-87	26.50		0.0000		30.75		0.0000

102	07-Jan-88	26.75		0.0094	**	30.75		0.0000 **
103	14-Jan-88	26.75		0.0000		29.00	2.60	0.0276
104	21-Jan-88	26.75		0.0000		27.10		-0.0655
105	28-Jan-88	27.00		0.0093		28.00		0.0332
106	04-Feb-88	27.00		0.0000		28.00		0.0000
107	11-Feb-88	27.00		0.0000		28.00		0.0000
108	18-Feb-88	27.00		0.0000		28.00		0.0000
109	25-Feb-88	27.25		0.0093		28.00		0.0000
110	03-Mar-88	27.50		0.0092		28.00		0.0000
111	10-Mar-88	27.50		0.0000		28.00		0.0000
112	17-Mar-88	27.50		0.0000		28.00		0.0000
113	24-Mar-88	27.50		0.0000		28.25		0.0089
114	31-Mar-88	27.50		0.0000		28.25		0.0000
115	07-Apr-88	27.50		0.0000		28.25		0.0000
116	14-Apr-88	27.50		0.0000		28.25		0.0000
117	21-Apr-88	27.50		0.0000		28.50		0.0088
118	28-Apr-88	27.50		0.0000		28.50		0.0000
119	05-May-88	27.50		0.0000		28.50		0.0000
120	12-May-88	27.50		0.0000		28.50		0.0000
121	19-May-88	27.50		0.0000		28.50		0.0000
122	26-May-88	28.00		0.0182		28.50		0.0000
123	02-Jun-88	28.00		0.0000		28.50		0.0000
124	09-Jun-88	28.00		0.0000		28.50		0.0000
125	16-Jun-88	28.00		0.0000		28.50		0.0000
126	23-Jun-88	25.60	1.40	-0.0357		28.50		0.0000
127	30-Jun-88	25.75		0.0059		28.75		0.0088
128	07-Jul-88	25.75		0.0000		29.00		0.0087
129	14-Jul-88	25.75		0.0000		29.00		0.0000
130	21-Jul-88	25.75		0.0000		29.00		0.0000
131	28-Jul-88	25.80		0.0019		29.00		0.0000
132	04-Aug-88	25.75		-0.0019		29.00		0.0000
133	11-Aug-88	25.75		0.0000		29.00		0.0000
134	18-Aug-88	25.75		0.0000		29.00		0.0000
135	25-Aug-88	25.75		0.0000		29.00		0.0000
136	01-Sep-88	25.75		0.0000		30.00		0.0345
137	08-Sep-88	25.75		0.0000		31.00		0.0333
138	15-Sep-88	26.00		0.0097		30.00		-0.0323
139	22-Sep-88	26.00		0.0000		31.00		0.0333
140	29-Sep-88	26.00		0.0000		31.00		0.0000
141	06-Oct-88	26.00		0.0000		31.00		0.0000
142	13-Oct-88	26.10		0.0038		31.00		0.0000
143	20-Oct-88	26.25		0.0057		31.00		0.0000
144	27-Oct-88	26.50		0.0095		31.00		0.0000
145	03-Nov-88	26.50		0.0000		31.00		0.0000
146	10-Nov-88	27.00		0.0189		31.50		0.0161
147	17-Nov-88	27.00		0.0000		32.50		0.0317
148	24-Nov-88	27.00		0.0000		32.50		0.0000
149	01-Dec-88	27.00		0.0000		32.50		0.0000
150	08-Dec-88	27.00		0.0000		33.00		0.0154
151	15-Dec-88	27.00		0.0000		33.50		0.0152
152	22-Dec-88	27.00		0.0000		33.50		0.0000

153	05-Jan-89	27.00		0.0000	**	34.00		0.0149 **
154	12-Jan-89	27.00		0.0000		34.00		0.0000
155	19-Jan-89	27.00		0.0000		31.00	2.60	-0.0118
156	26-Jan-89	27.00		0.0000		31.50		0.0161
157	02-Feb-89	27.00		0.0000		31.75		0.0079
158	09-Feb-89	27.00		0.0000		32.00		0.0079
159	16-Feb-89	27.00		0.0000		32.00		0.0000
160	23-Feb-89	27.00		0.0000		32.00		0.0000
161	02-Mar-89	27.25		0.0093		32.00		0.0000
162	09-Mar-89	27.00		-0.0092		32.50		0.0156
163	16-Mar-89	27.25		0.0093		32.50		0.0000
164	23-Mar-89	27.25		0.0000		32.50		0.0000
165	30-Mar-89	27.25		0.0000		33.00		0.0154
166	06-Apr-89	27.25		0.0000		33.00		0.0000
167	13-Apr-89	27.25		0.0000		33.00		0.0000
168	20-Apr-89	27.25		0.0000		33.00		0.0000
169	27-Apr-89	27.25		0.0000		33.00		0.0000
170	04-May-89	27.25		0.0000		33.10		0.0030
171	11-May-89	27.50		0.0092		33.25		0.0045
172	18-May-89	27.50		0.0000		33.25		0.0000
173	25-May-89	27.50		0.0000		33.50		0.0075
174	01-Jun-89	27.60		0.0036		33.50		0.0000
175	08-Jun-89	27.60		0.0000		33.50		0.0000
176	15-Jun-89	27.60		0.0000		33.50		0.0000
177	22-Jun-89	25.25	1.40	-0.0344		33.50		0.0000
178	29-Jun-89	25.25		0.0000		33.50		0.0000
179	06-Jul-89	25.25		0.0000		33.50		0.0000
180	13-Jul-89	25.25		0.0000		33.50		0.0000
181	20-Jul-89	25.50		0.0099		33.50		0.0000
182	27-Jul-89	25.50		0.0000		33.50		0.0000
183	03-Aug-89	25.50		0.0000		33.50		0.0000
184	10-Aug-89	26.00		0.0196		33.50		0.0000
185	17-Aug-89	26.00		0.0000		33.50		0.0000
186	24-Aug-89	26.00		0.0000		33.50		0.0000
187	31-Aug-89	26.00		0.0000		33.50		0.0000
188	07-Sep-89	26.00		0.0000		33.50		0.0000
189	14-Sep-89	26.10		0.0038		33.75		0.0075
190	21-Sep-89	26.25		0.0057		33.75		0.0000
191	28-Sep-89	26.25		0.0000		33.75		0.0000
192	05-Oct-89	26.50		0.0095		33.75		0.0000
193	12-Oct-89	26.50		0.0000		33.75		0.0000
194	19-Oct-89	26.50		0.0000		33.75		0.0000
195	26-Oct-89	26.50		0.0000		33.75		0.0000
196	02-Nov-89	26.50		0.0000		33.75		0.0000
197	09-Nov-89	26.50		0.0000		33.75		0.0000
198	16-Nov-89	26.50		0.0000		33.75		0.0000
199	23-Nov-89	26.50		0.0000		33.75		0.0000
200	30-Nov-89	26.50		0.0000		33.75		0.0000
201	07-Dec-89	26.50		0.0000		33.75		0.0000
202	14-Dec-89	26.50		0.0000		33.75		0.0000
203	21-Dec-89	26.50		0.0000		33.75		0.0000

204	18-Jan-90	26.50		0.0000 **	33.75		0.0000 **
205	25-Jan-90	26.50		0.0000	33.75		0.0000
206	01-Feb-90	26.50		0.0000	33.80		0.0015
207	08-Feb-90	26.75		0.0094	33.80		0.0000
208	15-Feb-90	26.75		0.0000	31.00	2.60	-0.0059
209	22-Feb-90	31.00		0.1589	31.00		0.0000
210	01-Mar-90	31.50		0.0161	31.25		0.0081
211	08-Mar-90	32.00		0.0159	31.25		0.0000
212	15-Mar-90	32.00		0.0000	31.25		0.0000
213	22-Mar-90	32.00		0.0000	31.25		0.0000
214	29-Mar-90	32.00		0.0000	31.25		0.0000
215	05-Apr-90	32.00		0.0000	32.00		0.0240
216	12-Apr-90	32.00		0.0000	35.00		0.0938
217	19-Apr-90	32.00		0.0000	35.00		0.0000
218	26-Apr-90	30.00	1.40	-0.0188	35.00		0.0000
219	03-May-90	30.00		0.0000	35.00		0.0000
220	10-May-90	30.50		0.0167	35.00		0.0000
221	17-May-90	30.50		0.0000	35.00		0.0000
222	24-May-90	30.50		0.0000	35.00		0.0000
223	31-May-90	30.50		0.0000	35.00		0.0000
224	07-Jun-90	31.00		0.0164	35.00		0.0000
225	14-Jun-90	32.50		0.0484	35.00		0.0000
226	21-Jun-90	32.50		0.0000	35.00		0.0000
227	28-Jun-90	31.00		-0.0462	35.00		0.0000
228	05-Jul-90	31.00		0.0000	35.00		0.0000
229	12-Jul-90	31.00		0.0000	35.00		0.0000
230	19-Jul-90	32.00		0.0323	35.00		0.0000
231	26-Jul-90	32.00		0.0000	35.00		0.0000
232	02-Aug-90	32.50		0.0156	35.00		0.0000
233	09-Aug-90	32.50		0.0000	35.00		0.0000
234	16-Aug-90	32.50		0.0000	35.00		0.0000
235	23-Aug-90	32.50		0.0000	35.00		0.0000
236	30-Aug-90	33.00		0.0154	35.00		0.0000
237	06-Sep-90	34.00		0.0303	35.00		0.0000
238	13-Sep-90	34.00		0.0000	35.00		0.0000
239	20-Sep-90	34.00		0.0000	35.00		0.0000
240	27-Sep-90	34.00		0.0000	35.00		0.0000
241	04-Oct-90	34.00	0.60	0.0176	35.00		0.0000
242	11-Oct-90	34.00		0.0000	35.00		0.0000
243	18-Oct-90	33.00		-0.0294	35.00		0.0000
244	25-Oct-90	33.00		0.0000	35.00		0.0000
245	01-Nov-90	33.00		0.0000	35.00		0.0000
246	08-Nov-90	33.00		0.0000	35.00		0.0000
247	15-Nov-90	33.00		0.0000	35.00		0.0000
248	22-Nov-90	33.00		0.0000	35.00		0.0000
249	29-Nov-90	33.00		0.0000	35.00		0.0000
250	06-Dec-90	33.00		0.0000	35.00		0.0000
251	13-Dec-90	33.00		0.0000	35.00		0.0000
252	20-Dec-90	33.00		0.0000	35.00		0.0000

51	08-Jan-87	16.50		0.0000	***	17.00		0.0000	***
52	15-Jan-87	16.50		0.0000		17.00		0.0000	
53	22-Jan-87	16.50		0.0000		17.00		0.0000	
54	29-Jan-87	16.50		0.0000		17.00		0.0000	
55	05-Feb-87	16.50		0.0000		17.00		0.0000	
56	12-Feb-87	16.00	0.50	0.0000		17.00		0.0000	
57	19-Feb-87	16.00		0.0000		17.30		0.0176	
58	26-Feb-87	16.00		0.0000		17.50		0.0116	
59	05-Mar-87	16.00		0.0000		17.50		0.0000	
60	12-Mar-87	16.00		0.0000		17.50		0.0000	
61	19-Mar-87	16.00		0.0000		17.50		0.0000	
62	26-Mar-87	16.00		0.0000		17.50		0.0000	
63	02-Apr-87	16.00		0.0000		17.50		0.0000	
64	09-Apr-87	16.25		0.0156		17.50		0.0000	
65	16-Apr-87	16.25		0.0000		18.00		0.0286	
66	23-Apr-87	16.25		0.0000		18.00		0.0000	
67	30-Apr-87	16.25		0.0000		18.00		0.0000	
68	07-May-87	16.25		0.0000		18.00		0.0000	
69	14-May-87	16.25		0.0000		18.25		0.0139	
70	21-May-87	16.25		0.0000		18.50		0.0137	
71	28-May-87	16.25		0.0000		18.75		0.0135	
72	04-Jun-87	16.25		0.0000		19.50		0.0400	
73	11-Jun-87	16.25		0.0000		19.50		0.0000	
74	18-Jun-87	16.25		0.0000		19.50		0.0000	
75	25-Jun-87	16.25		0.0000		19.50		0.0000	
76	02-Jul-87	16.25		0.0000		19.50		0.0000	
77	09-Jul-87	16.50		0.0154		19.50		0.0000	
78	16-Jul-87	16.75		0.0152		19.75		0.0128	
79	23-Jul-87	16.75		0.0000		19.75		0.0000	
80	30-Jul-87	17.00		0.0149		19.75		0.0000	
81	06-Aug-87	17.00		0.0000		19.75		0.0000	
82	13-Aug-87	17.00		0.0000		19.75		0.0000	
83	20-Aug-87	17.00		0.0000		19.75		0.0000	
84	27-Aug-87	17.00		0.0000		19.75		0.0000	
85	03-Sep-87	17.00		0.0000		19.75		0.0000	
86	10-Sep-87	17.50		0.0294		21.50		0.0886	
87	17-Sep-87	17.50		0.0000		22.00		0.0233	
88	24-Sep-87	16.50	0.875	-0.0071		22.50		0.0227	
89	01-Oct-87	16.50		0.0000		24.00		0.0667	
90	08-Oct-87	16.50		0.0000		24.75		0.0313	
91	15-Oct-87	16.75		0.0152		25.00		0.0101	
92	22-Oct-87	17.00		0.0149		23.75	1.25	0.0000	
93	29-Oct-87	17.00		0.0000		23.50		-0.0105	
94	05-Nov-87	17.00		0.0000		23.50		0.0000	
95	12-Nov-87	17.50		0.0294		23.75		0.0106	
96	19-Nov-87	17.75		0.0143		24.00		0.0105	
97	26-Nov-87	18.00		0.0141		24.00		0.0000	
98	03-Dec-87	18.00		0.0000		24.00		0.0000	
99	10-Dec-87	18.00		0.0000		24.00		0.0000	
100	17-Dec-87	18.00		0.0000		24.00		0.0000	
101	24-Dec-87	18.00		0.0000		24.00		0.0000	

102	07-Jan-88	18.00		0.0000 **	25.00		0.0417 **
103	14-Jan-88	18.00		0.0000	25.00		0.0000
104	21-Jan-88	18.25		0.0139	25.00		0.0000
105	28-Jan-88	18.50		0.0137	25.00		0.0000
106	04-Feb-88	18.50		0.0000	25.00		0.0000
107	11-Feb-88	18.50		0.0000	25.00		0.0000
108	18-Feb-88	18.50		0.0000	25.00		0.0000
109	25-Feb-88	18.50		0.0000	25.00		0.0000
110	03-Mar-88	18.25	0.40	0.0081	25.00		0.0000
111	10-Mar-88	18.25		0.0000	25.00		0.0000
112	17-Mar-88	18.25		0.0000	25.50		0.0200
113	24-Mar-88	18.75		0.0274	27.75		0.0882
114	31-Mar-88	19.00		0.0133	26.50		-0.0450
115	07-Apr-88	19.50		0.0263	26.75		0.0094
116	14-Apr-88	19.50		0.0000	26.00		-0.0280
117	21-Apr-88	20.00		0.0256	26.00		0.0000
118	28-Apr-88	20.00		0.0000	26.00		0.0000
119	05-May-88	20.00		0.0000	26.00		0.0000
120	12-May-88	20.00		0.0000	17.50	5.20	-0.1269
121	19-May-88	20.00		0.0000	17.50		0.0000
122	26-May-88	20.00		0.0000	17.50		0.0000
123	02-Jun-88	20.00		0.0000	17.50		0.0000
124	09-Jun-88	20.00		0.0000	17.50		0.0000
125	16-Jun-88	20.00		0.0000	17.50		0.0000
126	23-Jun-88	20.00		0.0000	17.50		0.0000
127	30-Jun-88	20.00		0.0000	17.50		0.0000
128	07-Jul-88	20.00		0.0000	18.25		0.0429
129	14-Jul-88	20.00		0.0000	18.50		0.0137
130	21-Jul-88	20.00		0.0000	18.75		0.0135
131	28-Jul-88	20.00		0.0000	19.00		0.0133
132	04-Aug-88	20.00		0.0000	19.00		0.0000
133	11-Aug-88	20.00		0.0000	19.25		0.0132
134	18-Aug-88	20.00		0.0000	19.25		0.0000
135	25-Aug-88	20.00		0.0000	19.25		0.0000
136	01-Sep-88	20.00		0.0000	19.50		0.0130
137	08-Sep-88	20.00		0.0000	19.50		0.0000
138	15-Sep-88	20.00		0.0000	19.50		0.0000
139	22-Sep-88	17.00	0.60	-0.1200	19.50		0.0000
140	29-Sep-88	17.00		0.0000	19.50		0.0000
141	06-Oct-88	17.00		0.0000	19.50		0.0000
142	13-Oct-88	17.00		0.0000	19.50		0.0000
143	20-Oct-88	17.00		0.0000	19.50		0.0000
144	27-Oct-88	17.00		0.0000	19.50		0.0000
145	03-Nov-88	17.50		0.0294	19.50		0.0000
146	10-Nov-88	18.00		0.0286	19.50		0.0000
147	17-Nov-88	18.00		0.0000	18.25	1.10	-0.0077
148	24-Nov-88	18.00		0.0000	18.25		0.0000
149	01-Dec-88	18.00		0.0000	18.50		0.0137
150	08-Dec-88	18.00		0.0000	19.00		0.0270
151	15-Dec-88	18.00		0.0000	19.50		0.0263
152	22-Dec-88	18.00		0.0000	19.50		0.0000

153	05-Jan-89	18.00		0.0000	**	20.00		0.0000 **
154	12-Jan-89	18.00		0.0000		20.00		0.0000
155	19-Jan-89	18.50		0.0278		20.00		0.0000
156	26-Jan-89	18.00		-0.0270		20.00		0.0000
157	02-Feb-89	18.00		0.0000		20.00		0.0000
158	09-Feb-89	18.00		0.0000		20.00		0.0000
159	16-Feb-89	18.00		0.0000		20.00		0.0000
160	23-Feb-89	17.75	0.70	0.0250		20.00		0.0000
161	02-Mar-89	17.75		0.0000		20.00		0.0000
162	09-Mar-89	17.75		0.0000		17.50		-0.1250
163	16-Mar-89	18.25		0.0282		17.50		0.0000
164	23-Mar-89	18.00		-0.0137		17.50		0.0000
165	30-Mar-89	18.00		0.0000		17.50		0.0000
166	06-Apr-89	18.00		0.0000		18.50		0.0571
167	13-Apr-89	18.00		0.0000		20.00		0.0811
168	20-Apr-89	18.00		0.0000		20.00		0.0000
169	27-Apr-89	18.00		0.0000		20.75		0.0375
170	04-May-89	18.00		0.0000		20.75		0.0000
171	11-May-89	18.10		0.0056		20.75		0.0000
172	18-May-89	18.10		0.0000		20.75		0.0000
173	25-May-89	18.10		0.0000		20.75		0.0000
174	01-Jun-89	18.10		0.0000		20.25		-0.0241
175	08-Jun-89	18.25		0.0083		20.40		0.0074
176	15-Jun-89	18.25		0.0000		20.75		0.0172
177	22-Jun-89	18.25		0.0000		21.00		0.0120
178	29-Jun-89	18.25		0.0000		21.00		0.0000
179	06-Jul-89	18.25		0.0000		21.00		0.0000
180	13-Jul-89	18.75		0.0274		20.00		-0.0476
181	20-Jul-89	18.00		-0.0400		20.00		0.0000
182	27-Jul-89	18.00		0.0000		20.00		0.0000
183	03-Aug-89	17.00		-0.0556		20.00		0.0000
184	10-Aug-89	17.00		0.0000		19.00		-0.0500
185	17-Aug-89	17.00		0.0000		19.00		0.0000
186	24-Aug-89	17.00		0.0000		19.00		0.0000
187	31-Aug-89	17.00		0.0000		19.00		0.0000
188	07-Sep-89	16.50		-0.0294		19.00		0.0000
189	14-Sep-89	16.50	0.40	0.0242		19.10		0.0053
190	21-Sep-89	16.50		0.0000		19.10		0.0000
191	28-Sep-89	16.50		0.0000		19.25		0.0079
192	05-Oct-89	16.50		0.0000		19.50		0.0130
193	12-Oct-89	16.75		0.0152		19.50		0.0000
194	19-Oct-89	16.75		0.0000		19.50		0.0000
195	26-Oct-89	16.75		0.0000		19.50		0.0000
196	02-Nov-89	16.75		0.0000		19.50		0.0000
197	09-Nov-89	16.75		0.0000		19.00		-0.0256
198	16-Nov-89	16.75		0.0000		19.00		0.0000
199	23-Nov-89	10.00		-0.4030		19.00		0.0000
200	30-Nov-89	10.50		0.0500		17.00	0.80	-0.0632
201	07-Dec-89	12.50		0.1905		17.50		0.0294
202	14-Dec-89	12.50		0.0000		17.50		0.0000
203	21-Dec-89	12.50		0.0000		17.50		0.0000

204	18-Jan-90	15.00		0.2000	**	17.50		0.0000 **
205	25-Jan-90	13.00		-0.1333		17.50		0.0000
206	01-Feb-90	13.50		0.0385		18.00		0.0286
207	08-Feb-90	13.50		0.0000		18.50		0.0278
208	15-Feb-90	13.50		0.0000		18.50		0.0000
209	22-Feb-90	13.50		0.0000		18.75		0.0135
210	01-Mar-90	13.50		0.0000		19.00		0.0133
211	08-Mar-90	13.50		0.0000		19.00		0.0000
212	15-Mar-90	13.00	0.40	-0.0074		19.00		0.0000
213	22-Mar-90	13.00		0.0000		19.00		0.0000
214	29-Mar-90	14.00		0.0769		19.25		0.0132
215	05-Apr-90	14.00		0.0000		19.50		0.0130
216	12-Apr-90	14.00		0.0000		19.50		0.0000
217	19-Apr-90	14.00		0.0000		19.50		0.0000
218	26-Apr-90	14.00		0.0000		19.00		-0.0256
219	03-May-90	14.00		0.0000		19.00		0.0000
220	10-May-90	12.50		-0.1071		19.00		0.0000
221	17-May-90	12.50		0.0000		17.50	0.70	-0.0421
222	24-May-90	12.50		0.0000		17.50		0.0000
223	31-May-90	12.50		0.0000		17.50		0.0000
224	07-Jun-90	13.25		0.0600		18.00		0.0286
225	14-Jun-90	13.50		0.0189		18.00		0.0000
226	21-Jun-90	13.50		0.0000		18.00		0.0000
227	28-Jun-90	13.00		-0.0370		18.25		0.0139
228	05-Jul-90	15.50		0.1923		18.25		0.0000
229	12-Jul-90	15.75		0.0161		18.25		0.0000
230	19-Jul-90	15.75		0.0000		18.25		0.0000
231	26-Jul-90	15.75		0.0000		18.25		0.0000
232	02-Aug-90	15.75		0.0000		18.50		0.0137
233	09-Aug-90	15.75		0.0000		18.25		-0.0135
234	16-Aug-90	16.00		0.0159		18.00		-0.0137
235	23-Aug-90	16.00		0.0000		19.00		0.0556
236	30-Aug-90	16.00		0.0000		19.00		0.0000
237	06-Sep-90	16.75		0.0469		18.50		-0.0263
238	13-Sep-90	16.00	0.70	-0.0030		18.00		-0.0270
239	20-Sep-90	16.00		0.0000		18.50		0.0278
240	27-Sep-90	16.00		0.0000		18.50		0.0000
241	04-Oct-90	16.00		0.0000		18.00		-0.0270
242	11-Oct-90	16.00		0.0000		18.50		0.0278
243	18-Oct-90	16.00		0.0000		19.00		0.0270
244	25-Oct-90	16.00		0.0000		19.00		0.0000
245	01-Nov-90	16.00		0.0000		19.00		0.0000
246	08-Nov-90	16.00		0.0000		19.00		0.0000
247	15-Nov-90	16.00		0.0000		19.50		0.0263
248	22-Nov-90	16.25		0.0156		19.50		0.0000
249	29-Nov-90	16.25		0.0000		20.00		0.0256
250	06-Dec-90	16.25		0.0000		20.00		0.0000
251	13-Dec-90	16.50		0.0154		19.50		-0.0250
252	20-Dec-90	16.50		0.0000		19.50		0.0000

NSE WEEK	TRADING & DATE	SASINI:Bid price,Div. &/or Bonus, & Returns. From 9/1/86 to 20/1/90 X9"B"	X9"D"	X9"R"	BAMBURI:Bid price,Div. &/or Bonus, & Returns. From 9/1/86 to 20/1/90 X10"B"	X10"D"	X10"R"
1	09-Jan-86	24.00			3.00		
2	16-Jan-86	24.75		0.0313	3.00		0.0000
3	23-Jan-86	26.00		0.0505	3.00		0.0000
4	30-Jan-86	26.50		0.0192	3.00		0.0000
5	06-Feb-86	26.50		0.0000	3.00		0.0000
6	13-Feb-86	26.50		0.0000	3.00		0.0000
7	20-Feb-86	25.50		-0.0377	3.00		0.0000
8	27-Feb-86	25.00		-0.0196	3.00		0.0000
9	06-Mar-86	26.50		0.0600	3.10		0.0333
10	13-Mar-86	23.00	2.25	-0.0472	3.10		0.0000
11	20-Mar-86	23.25		0.0109	3.10		0.0000
12	27-Mar-86	23.75		0.0215	3.10		0.0000
13	03-Apr-86	23.75		0.0000	3.10		0.0000
14	10-Apr-86	24.00		0.0105	3.10		0.0000
15	17-Apr-86	24.25		0.0104	3.00		-0.0323
16	24-Apr-86	24.60		0.0144	2.50		-0.1667
17	01-May-86	24.75		0.0061	2.50		0.0000
18	08-May-86	25.00		0.0101	2.25		-0.1000
19	15-May-86	25.00		0.0000	2.25		0.0000
20	22-May-86	25.75		0.0300	2.50		0.1111
21	29-May-86	26.00		0.0097	2.50		0.0000
22	05-Jun-86	26.00		0.0000	2.75		0.1000
23	12-Jun-86	26.00		0.0000	1.25		-0.5455
24	19-Jun-86	26.00		0.0000	1.25		0.0000
25	26-Jun-86	26.00		0.0000	1.50		0.2000
26	03-Jul-86	26.00		0.0000	1.75		0.1667
27	10-Jul-86	26.00		0.0000	1.75		0.0000
28	17-Jul-86	26.00		0.0000	1.75		0.0000
29	24-Jul-86	26.00		0.0000	1.80		0.0286
30	31-Jul-86	26.00		0.0000	2.00		0.1111
31	07-Aug-86	26.00		0.0000	2.00		0.0000
32	14-Aug-86	26.00		0.0000	2.00		0.0000
33	21-Aug-86	26.00		0.0000	2.00		0.0000
34	28-Aug-86	26.00		0.0000	2.00		0.0000
35	04-Sep-86	26.00		0.0000	2.00		0.0000
36	11-Sep-86	26.00		0.0000	2.00		0.0000
37	18-Sep-86	26.00		0.0000	2.00		0.0000
38	25-Sep-86	26.00		0.0000	2.00		0.0000
39	02-Oct-86	26.25		0.0096	2.00		0.0000
40	09-Oct-86	26.50		0.0095	2.00		0.0000
41	16-Oct-86	29.50		0.1132	2.00		0.0000
42	23-Oct-86	29.75		0.0085	2.00		0.0000
43	30-Oct-86	29.35		-0.0134	2.00		0.0000
44	06-Nov-86	28.25	1.50	0.0136	2.00		0.0000
45	13-Nov-86	28.25		0.0000	2.00		0.0000
46	20-Nov-86	28.25		0.0000	2.00		0.0000
47	27-Nov-86	28.25		0.0000	2.00		0.0000
48	04-Dec-86	28.50		0.0088	2.00		0.0000
49	11-Dec-86	28.00		-0.0175	2.00		0.0000
50	18-Dec-86	25.00		-0.1071	2.00		0.0000

51	08-Jan-87	25.00		0.0000	***	2.00	0.0000
52	15-Jan-87	26.00		0.0400		2.25	0.1250
53	22-Jan-87	26.00		0.0000		2.25	0.0000
54	29-Jan-87	26.00		0.0000		2.25	0.0000
55	05-Feb-87	26.00		0.0000		2.40	0.0667
56	12-Feb-87	26.00		0.0000		2.50	0.0417
57	19-Feb-87	26.00		0.0000		2.50	0.0000
58	26-Feb-87	27.00		0.0385		2.60	0.0400
59	05-Mar-87	27.50		0.0185		2.65	0.0192
60	12-Mar-87	25.00	2.50	0.0000		2.70	0.0189
61	19-Mar-87	25.00		0.0000		2.75	0.0185
62	26-Mar-87	25.35		0.0140		2.75	0.0000
63	02-Apr-87	25.50		0.0059		2.75	0.0000
64	09-Apr-87	25.50		0.0000		2.75	0.0000
65	16-Apr-87	25.60		0.0039		2.75	0.0000
66	23-Apr-87	25.50		-0.0039		2.75	0.0000
67	30-Apr-87	25.50		0.0000		2.80	0.0182
68	07-May-87	25.50		0.0000		2.75	-0.0179
69	14-May-87	26.00		0.0196		2.85	0.0364
70	21-May-87	26.00		0.0000		2.85	0.0000
71	28-May-87	26.00		0.0000		2.90	0.0175
72	04-Jun-87	26.00		0.0000		2.90	0.0000
73	11-Jun-87	26.00		0.0000		2.95	0.0172
74	18-Jun-87	26.00		0.0000		2.95	0.0000
75	25-Jun-87	26.00		0.0000		2.95	0.0000
76	02-Jul-87	26.25		0.0096		2.95	0.0000
77	09-Jul-87	27.00		0.0286		3.25	0.1017
78	16-Jul-87	27.50		0.0185		3.30	0.0154
79	23-Jul-87	27.50		0.0000		3.25	-0.0152
80	30-Jul-87	27.50		0.0000		3.25	0.0000
81	06-Aug-87	27.50		0.0000		3.50	0.0769
82	13-Aug-87	27.50		0.0000		3.50	0.0000
83	20-Aug-87	27.50		0.0000		3.50	0.0000
84	27-Aug-87	27.50		0.0000		3.50	0.0000
85	03-Sep-87	27.50		0.0000		3.50	0.0000
86	10-Sep-87	27.50		0.0000		3.50	0.0000
87	17-Sep-87	27.50		0.0000		3.90	0.1143
88	24-Sep-87	27.50		0.0000		4.25	0.0897
89	01-Oct-87	27.50		0.0000		4.40	0.0353
90	08-Oct-87	27.50		0.0000		4.50	0.0227
91	15-Oct-87	27.50		0.0000		4.00	-0.1111
92	22-Oct-87	27.50		0.0000		4.00	0.0000
93	29-Oct-87	27.75		0.0091		4.00	0.0000
94	05-Nov-87	26.50	1.00	-0.0090		4.00	0.0000
95	12-Nov-87	27.50		0.0377		4.00	0.0000
96	19-Nov-87	27.50		0.0000		4.00	0.0000
97	26-Nov-87	27.50		0.0000		4.00	0.0000
98	03-Dec-87	27.50		0.0000		4.00	0.0000
99	10-Dec-87	28.40		0.0327		4.00	0.0000
100	17-Dec-87	28.65		0.0088		4.00	0.0000
101	24-Dec-87	30.00		0.0471		4.25	0.0625

102	07-Jan-88	30.00		0.0000 **	4.25	0.0000
103	14-Jan-88	30.00		0.0000	4.65	0.0941
104	21-Jan-88	30.75		0.0250	4.75	0.0215
105	28-Jan-88	31.00		0.0081	4.75	0.0000
106	04-Feb-88	31.00		0.0000	4.00	-0.1579
107	11-Feb-88	31.00		0.0000	4.25	0.0625
108	18-Feb-88	31.00		0.0000	4.25	0.0000
109	25-Feb-88	31.00		0.0000	4.25	0.0000
110	03-Mar-88	31.00		0.0000	4.50	0.0588
111	10-Mar-88	31.00		0.0000	4.50	0.0000
112	17-Mar-88	31.00		0.0000	4.50	0.0000
113	24-Mar-88	26.00	1.50	-0.1129	4.50	0.0000
114	31-Mar-88	26.00		0.0000	4.50	0.0000
115	07-Apr-88	26.00		0.0000	4.50	0.0000
116	14-Apr-88	26.00		0.0000	2.00	-0.5556
117	21-Apr-88	26.00		0.0000	2.00	0.0000
118	28-Apr-88	26.00		0.0000	2.00	0.0000
119	05-May-88	26.00		0.0000	2.25	0.1250
120	12-May-88	26.00		0.0000	2.25	0.0000
121	19-May-88	26.50		0.0192	2.25	0.0000
122	26-May-88	27.50		0.0377	2.25	0.0000
123	02-Jun-88	27.50		0.0000	2.25	0.0000
124	09-Jun-88	27.50		0.0000	2.25	0.0000
125	16-Jun-88	27.50		0.0000	2.25	0.0000
126	23-Jun-88	27.50		0.0000	2.25	0.0000
127	30-Jun-88	27.50		0.0000	2.25	0.0000
128	07-Jul-88	27.50		0.0000	2.25	0.0000
129	14-Jul-88	27.50		0.0000	2.50	0.1111
130	21-Jul-88	27.75		0.0091	2.00	-0.2000
131	28-Jul-88	27.50		-0.0090	2.25	0.1250
132	04-Aug-88	27.50		0.0000	2.50	0.1111
133	11-Aug-88	27.50		0.0000	2.50	0.0000
134	18-Aug-88	27.50		0.0000	2.50	0.0000
135	25-Aug-88	27.50		0.0000	2.50	0.0000
136	01-Sep-88	27.50		0.0000	2.00	-0.2000
137	08-Sep-88	27.50		0.0000	2.60	0.3000
138	15-Sep-88	27.50		0.0000	2.00	-0.2308
139	22-Sep-88	27.50		0.0000	2.50	0.2500
140	29-Sep-88	27.50		0.0000	3.25	0.3000
141	06-Oct-88	27.50		0.0000	3.50	0.0769
142	13-Oct-88	27.50		0.0000	3.50	0.0000
143	20-Oct-88	29.00		0.0545	4.00	0.1429
144	27-Oct-88	29.25		0.0086	3.75	-0.0625
145	03-Nov-88	29.25		0.0000	3.75	0.0000
146	10-Nov-88	30.00		0.0256	3.75	0.0000
147	17-Nov-88	29.00	0.75	-0.0083	3.75	0.0000
148	24-Nov-88	29.25		0.0086	3.75	0.0000
149	01-Dec-88	29.25		0.0000	3.75	0.0000
150	08-Dec-88	29.50		0.0085	3.75	0.0000
151	15-Dec-88	29.50		0.0000	3.75	0.0000
152	22-Dec-88	29.75		0.0085	3.75	0.0000

153	05-Jan-89	29.75		0.0000	**	3.75	0.0000
154	12-Jan-89	29.75		0.0000		3.75	0.0000
155	19-Jan-89	29.75		0.0000		3.75	0.0000
156	26-Jan-89	29.75		0.0000		3.75	0.0000
157	02-Feb-89	29.75		0.0000		3.75	0.0000
158	09-Feb-89	29.75		0.0000		3.75	0.0000
159	16-Feb-89	29.75		0.0000		3.75	0.0000
160	23-Feb-89	29.75		0.0000		3.75	0.0000
161	02-Mar-89	30.00		0.0084		3.75	0.0000
162	09-Mar-89	25.00		-0.1667		3.75	0.0000
163	16-Mar-89	25.50		0.0200		.50	-0.8667
164	23-Mar-89	26.00		0.0196		1.00	1.0000
165	30-Mar-89	24.75	1.25	0.0000		1.75	0.7500
166	06-Apr-89	22.50		-0.0909		2.00	0.1429
167	13-Apr-89	24.00		0.0667		2.00	0.0000
168	20-Apr-89	24.00		0.0000		2.00	0.0000
169	27-Apr-89	24.00		0.0000		2.00	0.0000
170	04-May-89	24.25		0.0104		2.00	0.0000
171	11-May-89	24.50		0.0103		2.00	0.0000
172	18-May-89	25.00		0.0204		2.00	0.0000
173	25-May-89	26.00		0.0400		2.00	0.0000
174	01-Jun-89	26.25		0.0096		2.00	0.0000
175	08-Jun-89	26.50		0.0095		2.00	0.0000
176	15-Jun-89	26.50		0.0000		2.00	0.0000
177	22-Jun-89	26.50		0.0000		2.00	0.0000
178	29-Jun-89	28.00		0.0566		2.00	0.0000
179	06-Jul-89	28.00		0.0000		2.00	0.0000
180	13-Jul-89	28.00		0.0000		1.50	-0.2500
181	20-Jul-89	28.00		0.0000		1.50	0.0000
182	27-Jul-89	28.00		0.0000		1.50	0.0000
183	03-Aug-89	28.00		0.0000		1.50	0.0000
184	10-Aug-89	28.00		0.0000		1.50	0.0000
185	17-Aug-89	28.00		0.0000		1.50	0.0000
186	24-Aug-89	28.00		0.0000		1.50	0.0000
187	31-Aug-89	28.00		0.0000		1.50	0.0000
188	07-Sep-89	28.00		0.0000		1.60	0.0667
189	14-Sep-89	28.00		0.0000		1.60	0.0000
190	21-Sep-89	28.00		0.0000		1.95	0.2188
191	28-Sep-89	28.00		0.0000		2.05	0.0513
192	05-Oct-89	28.00		0.0000		2.10	0.0244
193	12-Oct-89	28.00		0.0000		2.10	0.0000
194	19-Oct-89	28.00		0.0000		2.10	0.0000
195	26-Oct-89	28.00		0.0000		2.10	0.0000
196	02-Nov-89	25.00		-0.1071		2.20	0.0476
197	09-Nov-89	20.00		-0.2000		2.25	0.0227
198	16-Nov-89	19.50	0.50	0.0000		2.30	0.0222
199	23-Nov-89	19.50		0.0000		2.25	-0.0217
200	30-Nov-89	19.00		-0.0256		2.25	0.0000
201	07-Dec-89	19.50		0.0263		2.40	0.0667
202	14-Dec-89	19.50		0.0000		2.40	0.0000
203	21-Dec-89	19.50		0.0000		2.50	0.0417

204	18-Jan-90	19.50		0.0000 **	2.50	0.0000
205	25-Jan-90	19.50		0.0000	2.50	0.0000
206	01-Feb-90	19.50		0.0000	2.50	0.0000
207	08-Feb-90	19.50		0.0000	2.50	0.0000
208	15-Feb-90	19.50		0.0000	2.50	0.0000
209	22-Feb-90	19.50		0.0000	2.50	0.0000
210	01-Mar-90	19.50		0.0000	2.50	0.0000
211	08-Mar-90	15.00		-0.2308	2.50	0.0000
212	15-Mar-90	15.00		0.0000	3.00	0.2000
213	22-Mar-90	15.00		0.0000	3.00	0.0000
214	29-Mar-90	15.00		0.0000	3.00	0.0000
215	05-Apr-90	15.00		0.0000	3.00	0.0000
216	12-Apr-90	14.50	0.50	0.0000	3.00	0.0000
217	19-Apr-90	14.50		0.0000	3.00	0.0000
218	26-Apr-90	14.50		0.0000	3.00	0.0000
219	03-May-90	14.50		0.0000	3.00	0.0000
220	10-May-90	15.00		0.0345	3.00	0.0000
221	17-May-90	15.00		0.0000	3.00	0.0000
222	24-May-90	15.00		0.0000	3.00	0.0000
223	31-May-90	15.00		0.0000	3.00	0.0000
224	07-Jun-90	17.50		0.1667	3.00	0.0000
225	14-Jun-90	17.50		0.0000	3.00	0.0000
226	21-Jun-90	17.50		0.0000	3.00	0.0000
227	28-Jun-90	17.50		0.0000	3.00	0.0000
228	05-Jul-90	17.50		0.0000	3.00	0.0000
229	12-Jul-90	17.50		0.0000	3.00	0.0000
230	19-Jul-90	18.00		0.0286	3.00	0.0000
231	26-Jul-90	17.50		-0.0278	3.00	0.0000
232	02-Aug-90	17.50		0.0000	3.00	0.0000
233	09-Aug-90	17.50		0.0000	3.00	0.0000
234	16-Aug-90	19.00		0.0857	3.00	0.0000
235	23-Aug-90	19.50		0.0263	3.00	0.0000
236	30-Aug-90	19.50		0.0000	3.00	0.0000
237	06-Sep-90	20.00		0.0256	3.00	0.0000
238	13-Sep-90	20.00		0.0000	3.25	0.0833
239	20-Sep-90	20.00		0.0000	3.00	-0.0769
240	27-Sep-90	20.00		0.0000	3.00	0.0000
241	04-Oct-90	17.50		-0.1250	3.00	0.0000
242	11-Oct-90	17.50		0.0000	3.00	0.0000
243	18-Oct-90	17.50		0.0000	3.00	0.0000
244	25-Oct-90	17.50		0.0000	3.00	0.0000
245	01-Nov-90	17.50		0.0000	3.25	0.0833
246	08-Nov-90	17.50	1.00	0.0571	3.00	-0.0769
247	15-Nov-90	17.50		0.0000	3.00	0.0000
248	22-Nov-90	17.50		0.0000	3.00	0.0000
249	29-Nov-90	17.50		0.0000	3.00	0.0000
250	06-Dec-90	17.50		0.0000	3.00	0.0000
251	13-Dec-90	17.50		0.0000	3.00	0.0000
252	20-Dec-90	17.50		0.0000	3.00	0.0000

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