AN EMPIRICAL INVESTIGATION OF THE CORRELATION OF STOCK RETURNS AND THE WEATHER AT THE NAIROBI STOCK EXCHANGE

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DECLARATION

This work is my own original work and has not been presented for a degree at any other university.

Signed:..... Date: 10-11-05.....

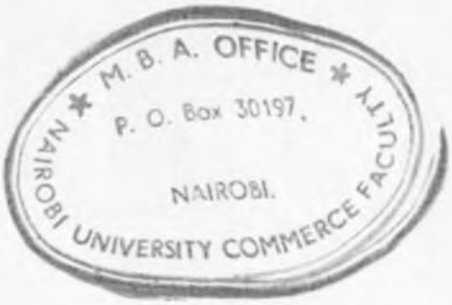
Irene Mosinya Nyambongi

D61/7118/2002

This research project has been submitted for examination with my approval as university Supervisor

Signed:..... Date: 10-11-05.....

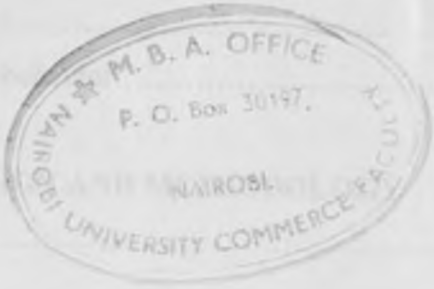
Mr Lishenga



DEDICATION

This study is dedicated to my parents Eng and Mrs Nyambongi, my brothers Jeff and Silas.

God bless you all



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ABSTRACT

This paper examined the relationship of stock returns to a stochastic variable, the realization of the weather. Psychological studies support the existence of an influence of weather on mood. It could affect the behaviour of market traders, as suggested by some authors, and this should be reflected by the stock returns. Proponents of behavioural finance argue that investors routinely and systematically make cognitive errors, thereby resulting in prices that deviate from the pure rationality of an efficient market. One implication of this view is that events which alter the mood, temper, confidence, or physical, mental or emotional state of investors can have significant effects on asset prices regardless of their effects on asset fundamentals.

Using data from the NSE and the meteorological department the impact of weather on trading days at the NSE was investigated with a view to establishing, *inter alia*, the probable efficacy of mounting profitable weather based trading strategies at the bourse. A five year period from January 1998 through to January 2003 was examined. Using the daily NSE 20 share index prices, mean percentage change in the index was calculated and this was paired up with the cloud cover measure for that particular day.

Statistical tests carried out on this data revealed that the NSE 20 share index value was not affected by the prevailing weather conditions in Nairobi at the time.

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Capital markets have evolved as highly "liquid Institutions" wherein individual investors can transact at will. Given that transactions occur in an uncertain environment it is legitimate to hypothesize an element of speculation in trading. It is evident that many investors do not buy stocks for "keeps" but rather to resell them in the near future in the hope of making a gain (Russell,1995). While one cannot conclude that the market consists merely of speculators, it is plausible that they may form a substantial group, even with the enormous growth of institutional investors.

Almost forty years have gone by since Fama (1965) introduced the idea of "efficient" stock market to financial economics literature, and, it continues to stimulate insight and controversy. Together with the rational choice paradigm, efficient markets hypothesis (EMH) has since been the driving force shaping asset pricing theories and models in finance. Briefly put, the theory is that prices in stock markets act as if they reflect all available information and are the result of actions of perfectly rational, risk averse, utility maximizing economic agents.

In 1970 Fama published an influential and classic survey entitled "Efficient Capital Markets". The article focused on the theory and empirical evidence of efficient capital markets. He concluded that: the very idea that interactions among market participants and the frictionless dissemination of information prevent individuals from making assured gains in competitive capital markets. Twenty-one years later, in 1991, Fama published a follow up to his article entitled "the behavior of stock market prices" in which he presented compelling statistical evidence based on efficient market hypothesis. His work was followed by an immense literature on the validity of the efficient market hypothesis and the root causes of its potential failure resulting to studies on anomalies of the stock market returns.

Most early studies supported the random walk model in which it was not possible to predict future prices from historical prices (Jensen and Benington (1970), Fama and Blume 1965), and Alexander (1961, 1964). It was not long, however, before researchers began to report anomalous evidence that contradicted the EMH. Voluminous literature documenting these anomalies exists from studies in many world markets. The anomalies range from the Price Earnings Ratio effect

reported by Basu (1977); the small firm effect of Banz (1981) and Reüiganum (1983).

Calendar anomalies (seasonalities) represented by the year—end effect (Roll (1983), Rozeff(1985),and Rogalski and Tinic (1986)), the year ending in 5 effect recorded by Schwert (2001), turn of the month effect, and the weekend effect (French(1980), Jaffe and Westerfield (1985),and Rogaiski (1984)). Other regularities include price overreactions (DeBondt and Thaler (1985,1987)), price under reactions(Jegadeesh and Titman (1993)), post event drift (Bernard and Thomas (1989)), and Hong and Stein (1999)), and value premia (Fama and French (1992)).

In Kenya studies include Muthui (2003) on the effect of the Price Earnings Ratio on share performance at the Nairobi Stock Exchange, Ndung'u (2003) who reported the existence of the size effect, Morara (2003) reported that there was no weekend effect on stock prices at the NSE and Kamau (2003) studied turn of the month and January effect.

As behavioral finance takes its roots in mainstream financial research, a burgeoning sub-field has emerged which inquires about how meteorological conditions affect investors' behavior and hence the stock market returns. The central premise of behavioral finance is that individuals are not always rational and their decision-making is influenced by their mood or emotional state. If meteorological conditions affect mood, then they will influence investors' risk aversion and risk assessments, which in turn affect their investment behavior.

Psychological studies support the existence of an influence of weather on mood. It could affect the behaviour of market traders, as suggested by some authors, and this should be reflected by the stock returns. Proponents of behavioural finance argue that investors routinely and systematically make cognitive errors, thereby resulting in prices that deviate from the pure rationality of an efficient market (Statman, 1999; Thaler, 1999). One implication of this view is that events which alter the mood, temper, confidence, or physical, mental or emotional state of investors can have significant effects on asset prices regardless of their effect on asset fundamentals.

Identifying the links between meteorological variables and human behavior has long been a scientific premise. As summarized by Howarth and Hoffman (1984), researchers hypothesize that weather affects mood, which in turn regulates behavior. The typical weather variables under study include amount of sunshine, precipitation, humidity, temperature, wind speed and direction, and barometric pressure.

In a comprehensive study encompassing all the aforementioned weather variables, Howarth and Hoffman (1984) found that humidity, temperature and amount of sunshine exert the greatest impact on mood. In particular, the three variables in order of importance had significant effects on concentration. In addition, under extremely cold temperatures, say between -8 .C and-28 .C, people reported increased aggressive feelings. Saunders(1993) documented evidence, which showed that when it is cloudy in New York City, New York Stock Exchange (NYSE) index returns tend to be negative. He reported that the cloudiness/ returns correlation is robust to various choices of stock index and regression specification. Kamstra et al(2000)investigated the impact of daylight saving changes on the stock price indexes of four countries and found that returns are significantly lower on days that follow the Spring and Fall time changes.

The above findings provide significant challenge to the traditional finance theory of efficient markets insofar as they imply that investor behaviour, and consequently market prices respond to factors and events other than economic fundamentals such as the psychological state of investors. Of course, if sunlight affects the weather it can affect agricultural and perhaps other weather - related firms. But as Hirshleifer and Shumway (2003) point out, it seems unlikely that whether it's cloudy outside, the stock exchange today should affect the rational price of the nations stock market index. Even in a country like Kenya where agriculture plays a large role, it is not clear that one day of sunshine versus cloud cover at the stock exchange should be very informative about harvest yield. Moreover, sunshine is a transitory variable. The amount of unexpected sunshine occurring today is not highly correlated with the amount that will prevail one week or one month from today.

An alternative view is that sunlight affects mood, and that people tend to evaluate future prospects more optimistically when they are in a good mood than when they are in a bad mood. Literature on psychology reports that mood affect judgment and behavior. The inferences drawn from mood can go astray, however, people sometimes attribute their mood to the wrong feature of the environment. For example, someone who is in good mood because of sunshine may unconsciously attribute this feeling to generally favorable life prospects. If such misattribution extends to investments, then stock prices will fluctuate in response to the mood by investors (Hirshlifer, Shumway 2001).

This evidence suggests that on dim, dull, dreary depressing days stocks will decline whereas cheery bright days will boost stocks. By examining the effects of sunlight on the Nairobi Stock Exchange(NSE), this study will provide a means of testing whether psychological biases, can affect stock returns.

1.2 STATEMENT OF THE PROBLEM

Psychologists have been documenting correlation between sunshine and behavior for decades. Among other things, sunshine has been linked to tipping (Rind 1996), and lack of sunshine to depression (Eagles (1994) and suicide (Tietjen and Kripke (1994)). Most evidence suggests that people feel better when exposed to more sunshine. If people are more optimistic when the sun shines they may be more inclined to buy stocks on sunny days. Specifically, they may incorrectly, attribute their good mood to positive economic prospects rather than good weather. This suggests that sunshine is positively correlated with stock returns.

Market anomalies in stock markets should be related to investors' trading strategies, which are based on their psychologies along with other factors. The fact that some weather variables affect investor's performance and mood can also affect market prices substantially (Dowling et al, 2002).

Weather could be one of the reasons for market anomalies, so it should be investigated to find the evidence against Efficient Market Hypothesis(EMH). It is a reality that human psychology is affected by weather conditions.

Numerous empirical studies have been carried out in developed countries to establish the relationship between the weather and stock prices. No known studies in Kenya have been conducted to try and establish this relationship. This project aims to contribute to the literature on market anomalies by examining the relationship of stock returns to a stochastic variable, the realization of the weather. Using data from the NSE and the meteorological department the impact of weather on trading days at the NSE is investigated with a view to establishing, *inter alia,* the probable efficacy of mounting profitable weather based trading strategies at the bourse.

1.3 OBJECTIVE and HYPOTHESIS

The study's objective is to test the hypothesis that weather in Nairobi is correlated to stock returns at the NSE.

1.31 Hypothesis:

Ho: weather in Nairobi is not correlated to stock returns at the NSE.

Ha: weather in Nairobi is correlated to stock returns at the NSE.

1.4 IMPORTANCE OF THE STUDY

- The study is of importance to potential investors as they will be able to know whether weather based trading strategies can be profitable.

- The study will also be of importance to the Capital Markets Authority and the Nairobi Stock Exchange as they are interested in reducing inefficiencies at the bourse.

- The Meteorological department will find the study important as they will be able to assess the usefulness of the information they provide.

- The study will be a source of information for further research by academicians in this area as it is expected to stimulate further interest in this area which is not adequately researched.

CHAPTER 2

2.0 LITERATURE REVIEW

Capital market efficiency has been a popular topic for teaching since Fama (1970) described the theoretical analysis of market efficiency. Subsequent to the Fama studies a great deal of research has been devoted to investigating the randomness of stock price movements for the purpose of demonstrating the efficiency capital markets. More recently, however researchers have demonstrated market inefficiency by identifying systematic variations in stock returns.

2.1 EFFICIENT MARKET HYPOTHESIS

Fama (1970) made a distinction between three forms of EMH: (a) the weak form, (b) the semi-strong form, and (c) the strong form. However, it is the semi-strong form of EMH that has formed the basis for most empirical research.

The strong form suggests that securities prices reflect all available information, even private information. Seyhun (1986, 1998) provides sufficient evidence that insiders profit from trading on information not already incorporated into prices. Hence the strong form does not hold in a world with an uneven playing field. The semi-strong form of EMH asserts that security prices reflect all publicly available information. There are no undervalued or overvalued securities and thus, trading rules are incapable of producing superior returns. When new information is released, it is fully incorporated into the price rather speedily. The availability of intraday data enabled tests which offer evidence of public information impacting stock prices within minutes (Patell and Wolfson, 1984, Gosnell, Keown and Pinkerton, 1996). The weak form of the hypothesis suggests that past prices or returns reflect future prices or returns. The inconsistent performance of technical analysts suggests this form holds. However, Fama (1991) expanded the concept of the weak form to include predicting future returns with the use of accounting or macroeconomic variables.

While the semi-strong form of EMH has formed the basis for most empirical research, recent research has expanded the tests of market efficiency to include the weak form of EMH. There continues to be disagreement on the degree of market efficiency. This is exacerbated by the joint hypothesis problem. Tests of market efficiency must be based on an asset-pricing model. If the evidence is against market efficiency, it may be because the market is inefficient, or it may be that the model is incorrect. The literature documented below presents evidence of inefficiencies based on existing models and more recent research findings that cast doubt on these models.

2.2 MARKET ANOMALIES

The EMH became controversial especially after the detection of certain anomalies in the capital markets. Some of the main anomalies that have been identified are as follows:

A. The January Effect: Rozeff and Kinney (1976) were the first to document evidence of higher mean returns in January as compared to other months. Using NYSE stocks for the period 1904-1974, they found that the average return for the month of January was 3.48 percent as compared to only .42 percent for the other months. Later studies document the effect persisted in more recent years: Bhardwaj and Brooks (1992) for 1977-1986 and Eleswarapu and Reinganum (1993) for 1961-1990.

B. The Weekend Effect (or Monday Effect): French (1980) analyzed daily returns of stocks for the period 1953-1977 and found that there was a tendency for returns to be negative on Mondays whereas they were positive on the other days of the week. He noted that these negative returns were "caused only by the weekend effect and not by a general closed-market effect". A trading strategy, which would be profitable in this case, would be to buy stocks on Monday and sell them on Friday. Kamara (1997) showed that the S&P 500 has no significant Monday effect after April 1982, yet he found the Monday effect undiminished from 1962-1993 for a portfolio of smaller U.S. stocks. Internationally, Agrawal and Tandon (1994) found significantly negative returns on Monday in nine countries and on Tuesday in eight countries, yet large and positive returns on Friday in 17 of the 18 countries studied. However their data did not extend beyond 1987. Steeley (2001) found that the weekend effect in the UK had disappeared in the 1990s.

C. Other Seasonal Effects: Holiday and turn of the month effects have been well documented over time and across countries. Lakonishok and Smidt (1988) showed that US stock returns were significantly higher at the turn of the month, defined as the last and first three trading days of the month. Ariel (1987) showed that returns tended to be higher on the last day of the month. Cadsby and Ratner (1992) found similar turn of month effects in some countries and not in others. Ziemba (1991) found evidence of a turn of month effect for Japan when turn of month is defined as the last five and first two trading days of the month. Hensel and Ziemba (1996) and Kunkel and Compton (1998) showed how abnormal returns could be earned by exploiting this anomaly. Lakonishok and Smidt (1988), Ariel (1990), and Cadsby and Ratner (1992) all provided evidence to show that returns are, on average, higher the day before a holiday, than on other trading days.

Brockman and Michayluk (1998) described the pre-holiday effect as one of the oldest and most consistent of all seasonal regularities.

D. Small Firm Effect: Banz (1981) published one of the earliest articles on the 'small-firm effect' which is also known as the 'size-effect'. His analysis of the 1936-1975 period revealed that excess returns would have been earned by holding stocks of low capitalization companies. Supporting evidence is provided by Reinganum (1981) who reported that the risk adjusted annual return of small firms was greater than 20 percent. If the market were efficient, one would expect the prices of stocks of these companies to go up to a level where the risk adjusted returns to future investors would be normal. But this did not happen.

E. P/E Ratio Effect: Sanjoy Basu (1977) showed that stocks of companies with low P/E ratios earned a premium for investors during the period 1957-1971. An investor who held the low P/E ratio portfolio earned higher returns than an investor who held the entire sample of stocks. These results also contradict the EMH. Campbell and Shiller (1988b) showed P/E ratios have reliable forecast power. Fama and French (1995) found that market and size factors in earnings help explain market and size factors in returns. Dechow, Hutton, Meulbroek and Sloan (2001) documented that short-sellers positioned themselves in stocks of firms with low earnings to price ratios since they were known to have lower future returns.

F. Value-Line Enigma: The Value-Line organization divides the firm into five groups and ranks them according to their estimated performance based on publicly available information. Over a five year period starting from 1965, returns to investors correspond to the rankings given to firms. That is, higher ranking firms earned higher returns. Several researchers (e.g. Stickel, 1985) found positive risk-adjusted abnormal (above average) returns using value line rankings to form trading strategies, thus challenging the EMH.

G. Over/Under Reaction of Stock Prices to Earnings Announcements: There is substantial documented evidence on both over and under-reaction to earnings announcements. DeBondt and Thaler (1985, 1987) presented evidence that is consistent with stock prices overreacting to current changes in earnings. They reported positive (negative) estimated abnormal stock returns for portfolios that previously generated inferior (superior) stock price and earning performance. This could be construed as the prior period stock price behavior overreacting to earnings developments (Bernard, 1993). Such interpretation was challenged by Zarowin (1989) but is supported by

DeBondt and Thaler (1990). Bernard (1993) further notes that such anomalies are not due to research design flaws, inappropriate adjustment for risk, or transaction costs. Thus, the evidence suggests that information is not impounded in prices instantaneously as the EMH would predict.

H. Standard & Poor's (S&P) Index effect: Harris and Gurel (1986) and Shleifer (1986) found a surprising increase in share prices (up to 3 percent) on the announcement of a stock's inclusion into the S&P 500 index. Since in an efficient market only information should change prices, the positive stock price reaction appeared to be contrary to the EMH because there was no new information about the firm other than its inclusion in the index.

I. The Distressed Securities Market: While the academic literature largely suggests that stocks in the distressed securities market are efficiently priced (e.g. Ma and Weed [1986], Weinstein [1987], Fridson and Cherry [1990], Blume, Keim and Patel [1991], Cornell and Green [1991], Eberhart and Sweeney [1992], Altman and Eberhart [1994], Buell [1992]) the popular press has frequently conjectured that the stock pricing may be inefficient during the bankruptcy period. Investors have always sought superior returns in the securities market and vulture investors have attracted a substantial amount of risk-oriented money by offering the possibility of high returns by exploiting the *apparent* pricing inefficiencies or anomalies in the market for distressed securities. As Philip Schaeffer of Robert Fleming Inc. puts it:

"Returns are attractive because of market's abundant inefficiencies. Investors who find themselves owners of distressed securities do not understand or want to participate in the market and frequently sell at prices substantially below the investments' cost. Distressed investing requires skills involving bankruptcy law, experience and knowledge of the bankruptcy process, and personal contacts. Consequently, the relatively small number of experienced distressed security investors have a significant advantage over other investors who do not have such expertise, knowledge and experience". [Wall Street Journal, 1991]

K. The Weather: Few would argue that sunshine puts people in a good mood. People in good moods make more optimistic choices and judgments. Saunders (1993) shows that the New York Stock Exchange index tends to be negative when it is cloudy. More recently, Hirshleifer and Shumway (2001) analyzed data for 26 countries from 1982-1997 and found that stock market returns are positively correlated with sunshine in almost all of the countries studied. Interestingly, they found that snow and rain have no predictive power!

Sunshine affects mood, as evidenced by daily experience, and formal psychological studies. But does sunlight affect the stock market?

The traditional efficient markets view says no, with minor qualifications. If sunlight affects the weather, it can affect agricultural and perhaps other weather-related firms. But in modern economies in which agriculture plays a modest role, it seems unlikely that whether it is cloudy outside the stock exchange today should affect the rational price of the nation's stock market index. (Even in countries where agriculture plays a large role, it is not clear that one day of sunshine versus cloud cover at the stock exchange should be very informative about harvest yield.) (Hirshlifer, shumway, 2001)

2.3 MISATTRIBUTION OF MOOD, SUNSHINE AND STOCK RETURNS

A literature in psychology considers how emotions and moods affect human behavior. People who are in good moods make more optimistic choices and judgments than people in bad moods.(Wright and Bower,1992).

Moods most strongly affects relatively abstract judgments about which people lack concrete information (Clore, Schwarz, and Conway (1994), Forgas (1995)). Bad moods tend to stimulate people to engage in detailed analytical activity, whereas good moods are associated with heuristic and less critical modes of information processing (Schwarz (1990); Petty, Gleicher, and Baker (1991)). People in good moods are more receptive to weak as well as strong arguments (Mackie and Worth, 1991). However, people in good moods tend to generate more unusual associations and perform better in creative problem-solving tasks.

Loewenstein (2000) discusses the role of emotions in economic behavior. Particularly relevant for stock market decisions is the finding that mood has strong effects on judgments of risk (Johnson and Tversky, 1983). This is probably related to the fact that judgments and decisions about risk are influenced by feelings and emotional reactions.

An important part of many theories of affective states (emotions or moods) is that such states provide information, perhaps unconsciously, to individuals about the environment (Frijda,1988: Schwarz,1990).

An important finding of this literature is that people often attribute their feelings to the wrong source, leading to incorrect judgments. As an example of this problem of misattribution, people feel happier on sunny days than on rainy days. The effect of sunlight on their judgments about happiness is reduced if they are primed by asking them about the weather (Schwarz and Clore, 1983). Presumably this reminds them to attribute their good mood to sunshine rather than to long-term considerations.

If people are rational maximizers, there is little reason to conjecture that sunshine is correlated with stock returns. It is certainly likely that weather affects economic output, particularly in industries like agriculture and construction. However, the sunshine that occurs in one particular location is not generally representative of the weather in an entire economy. Moreover, sunshine is a transitory variable. The amount of sunshine today is not highly correlated with the amount that will prevail one week or one month from today. (Hirshliefer, shumway, 2001).

Furthermore, the prediction is not that the news (as in a weather forecast) that the day will be sunny causes an immediate and complete positive stock price reaction. Rather, it is the occurence of the sunshine itself that should cause prices to move.

An alternative to the informational perspective on affect is to view feelings as affecting preferences. Loewenstein (1996) reviews literature on, and models how, 'visceral factors' such as hunger, fatigue, sexual desire, moods, emotions, pain and drug cravings affect preferences between different goods. Mehra and Sah (2000) provide an analysis of the determination of stock prices when mood affects preferences. They show that small random fluctations in preference parameters can cause significant volatility in prices.

There is already some evidence that sunshine influences markets.
Saunders (1993) shows that when it is cloudy in New York City, New York Stock Exchange index returns tend to be negative. He shows that the cloudiness/returns correlation is robust to various choices of stock index and regression specification.

Dowling et al (2002) have investigated weather effect on investors' mood; consequently, stock exchange returns, to use sunny, rainy days variables, humidity level and biorhythm variables for Ireland. They have reported that weather has an influence on investors' mood, thus, on determination of share prices.

Pardo et al (2002) investigated the possible relation between weather and market index returns in the context of the Spanish market. To see whether or not there is an influence of sunshine hours or humidity levels on stock prices, independent of trading system, they used daily closing values of the Madrid Stock Exchange Index. They reported that there is no influence of sunshine hours humidity levels on stock prices and this result is also independent of the trading system.

Another negative evidence has been given by Kramer and Runde (1997). They have investigated weather effect for Frankfurt Stock Exchange and found that short-term stock returns are not affected by the local weather conditions. Authors also claim that the fact that some studies provides evidences favoring the existence of this effect but some others do not may depend on different statistical methods that have been used.

Goetzmann, et al (2002) have investigated weather effects on traders for five major U.S. cities by using individual investors account information. They have virtually reported no difference in individual's propensity to buy or sell equities on cloudy days as opposed to sunny days. However, the behaviour of market makers may be responsible for the relation between returns and weather.

In respect of humidity, sunny, cloudy, snowy and rainy days, weather effect has been tested on stock returns and liquidity in literature. For example, Hirshleifer and Shumway (2003) have followed the same ways for 26 stock exchanges and reported that sunshine is highly significantly correlated with daily stock returns after controlling the sunshine and other weather conditions such as rain and snow, which are unrelated to returns.

2.4 EMPIRICAL EVIDENCE

There are a number of papers, mainly within the field of Psychology, that have reported a significant impact of weather conditions on human behaviour. Howarth and Hoffman (1984), for instance, observed that positive human performance was negatively correlated with high humidity levels, but positively correlated with the number of hours of sunshine.

These results lead immediately to the following question: could the weather have a direct impact on the financial markets by affecting the behaviour of the market traders?

Several works have tried to answer this question. By considering that people in good mood make more optimistic choices and judgments, Saunders (1993) showed that the weather in New York

City had a long history of significant correlation with the major USA stock indices. More specifically, Saunders reported that the NYSE index returns tend to be negative on cloudy days.

On one hand, Krämer and Runde (1997) replicated the findings in Saunders using German data, and concluded that short-term stock returns were not affected by local weather. On the other hand, Kamstra, Kramer and Levi (2000) found international evidence that the shift from daylight saving time had a significant and negative impact on asset prices. Also, Kamstra, Kramer and Levi (2002) studied the number of hours of potential daylight, lower in winter, and observed that it was significantly related to the return from international equity indices.

Hirshleifer and Shumway (2002) detected a strong and positive correlation between morning sunshine at a country's leading stock exchange and market index stock returns at 26 countries.

Kamstra, Kramer, and Levi (2000) used data from several countries to show that the Friday-Monday return was significantly lower on daylight-savings weekends than on other weekends. However, such changes can affect sleep patterns, not just hours of sunlight.

Kamstra, Kramer and Levi (2000) examined the effects of seasonal shifts in length of day in the Southern and Northern hemisphere and their relation to the January effect. They found that stock market returns are significiantly related to the length of the day, and that this helps explain the January effect. This evidence describes a relation between stock returns and a completely predictable seasonal effect, the shifts in the length of day through the seasons.

These phenomena have been rightly referred to as anomalies because they cannot be explained within the existing paradigm of EMH. It clearly suggests that information alone is not moving the prices. (Roll, 1984). These anomalies have led researchers to question the EMH and to investigate alternate modes of theorizing market behavior. Such a development is consistent with Kuhn's (1970) route for progress in knowledge. As he states, "Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm induced expectations..."(Kuhn, 52).

2.5 MODELS OF HUMAN BEHAVIOR

In a market consisting of human beings, it seems logical that explanations rooted in human and social psychology would hold great promise in advancing our understanding of stock market

behavior. More recent research has attempted to explain the persistence of anomalies by adopting a psychological perspective. Evidence in the psychology literature reveals that individuals have limited information processing capabilities, exhibit systematic bias in processing information, are prone to making mistakes, and often tend to rely on the opinion of others.

The damaging attacks on the assumption of human rationality have been spearheaded by Kahneman and Tversky (1986) in their path breaking article on prospect theory. The findings of Kahneman and Tversky have brought into question expected utility theory which has been used descriptively and predictively in the finance and economics literature. They argue that when faced with the complex task of assigning probabilities to uncertain outcomes, individuals often tend to use cognitive heuristics. While useful in reducing the task to a manageable proportion, these heuristics often lead to systematic biases.

Using simple decision tasks, Kahneman and Tversky were able to demonstrate consistent decision inconsistencies by manipulating the decision frame. While expected utility theory would predict that individuals would evaluate alternatives in terms of the impact on these alternatives on their final wealth position, it is often found that individuals tend to violate expected utility theory predictions by evaluating the situation in terms of gains and losses relative to some reference point. The usefulness and validity of Kahneman and Tversky's propositions have been established by several replications and extensions for situations involving uncertainty by researchers in the fields of accounting, economics, finance, and psychology. Rabin and Thaler (2001) showed that expected utility theory's explanation of risk aversion is not plausible by providing examples of how the theory can be wrong and misleading.

The literature on cognitive psychology provides a promising framework for analyzing investors' behavior in the stock market. By dropping the stringent assumption of rationality in conventional models, it might be possible to explain some of the persistent anomalous findings. For example, the observation of overreaction is consistent with the finding that subjects, in general, tend to overreact to new information (and ignore base rates). Also, agents often allow their decision to be guided by irrelevant points of reference, a phenomenon discussed under "anchoring and adjustment". Shiller (1984) proposed an alternate model of stock prices that recognizes the influence of social psychology. He attributed the movements in stock prices to social movements. Since there is no objective evidence on which to base their predictions of stock prices, it is suggested that the final opinion of individual investors may largely reflect the opinion of a larger

group. Thus, excessive volatility in the stock market is often caused by social "fads" which may have very little rational or logical explanation.

Shiller (1991, ch.23) also investigated investor behavior during the October 1987 crash by surveying individual investors, institutional investors and stockbrokers. The survey results indicated that most investors traded because of price changes rather than due to news about fundamentals. There appear to have been no major economic developments at that time that triggered the crash. He concluded that it would be wrong to interpret the crash as being due to a change in public opinion about some fundamental economic factor.

Research into investor behavior in the securities markets has rapidly expanded with very surprising results, again, results that are often counter to the notion of rational behavior. Using a unique data set of two years of investor behavior for almost the entire set of investors from Finland, Grinblatt and Keloharju (2001) found that distance, language, and culture influenced stock trades. Huberman and Regev (2001) provide an example of how and not when information is released can cause stock price reactions. They studied the stock price effect of news about a firm developing a cure for cancer. Although the information had been published a few months earlier in multiple media outlets, the stock price more than quadrupled the day after receiving public attention in the New York Times. Although there was no new information presented, the form in which it was presented caused a permanent price rise.

The efficient market view of prices representing rational valuation of fundamental factors has also been challenged by Summers (1986), who views the market to be highly inefficient. He proposed that pricing should comprise a random walk plus a fad variable. The fad variable was modeled as a slowly mean-reverting stationary process. That is, stock prices will exercise some temporary aberrations, but will eventually return to their equilibrium price levels.

One may argue that market mechanisms may be able to correct the individual decision biases, and thus individual differences may not matter in the aggregate. However, the transition from micro behavior to macro behavior is still not well established. For example, in their study of price differences among similar consumer products, Pratt, Wise and Zeckhauser (1979) demonstrate the failure of the market to correct individual biases.

CHAPTER 3

3.0 RESEARCH DESIGN AND METHODOLOGY

3.1 data collection

The study aimed at determining whether there is a significant relationship between stock price returns and the weather in Nairobi. The research took the form of an empirical study based on data recorded at the Nairobi stock exchange and intended to cover a period of 10 years between 1994 and 2003 but only managed to get data for the period 1998 to 2003.

The study used secondary data in the form of daily stock price indexes and daily climatological data for Nairobi covering the period 1998 – 2003. published data was obtained from the NSE and the Meteorological department respectively.

3.2 data analysis method

To calculate the change in the NSE 20 share index for each day the formulae used was:

$$\text{Percentage change of the NSE 20 index trading day t} = \frac{\text{closing index or the trading day} - \text{closing index the previous trading day t-1}}{\text{Closing index the previous day t-1}} \times 100\%$$

Cloud cover data was obtained in percentage points and were stratified into four categories i.e (0 – 20)%, (30 – 60)%, (70 – 90)% and 100% and each trading day t. The appropriate category was then assigned depending on the weather observations.

Mean percentage change in the NSE 20 index was calculated for each cloud cover category using the following formulae:

$$\text{Mean percentage daily Change for each category} = \frac{\sum \text{percentage daily change of the NSE 20 index in the category}}{n}$$

Where n is the number of daily observations in each category.

Mean percentage of positive daily change in the NSE 20 index was also determined for each cloud cover category using the following formulae:

mean percentage of daily index increases (positive change) for each category $=$ $\frac{\text{number of positive daily change in that category}}{N}$

Where N is the number of mean percentage of daily index observations in each category.

3.3 statistical tests

Test statistics (Z statistic consistent with Saunders 1993) was used to document differences in mean returns and frequency of positive change for observations grouped by percentage daily cover.

The Z statistic used to test the hypothesis that:

- The mean change in indexes (in 3 above) are not significantly different for category (0% – 20%) and 100%.
- The mean % of positive daily changes in 4 above are not significantly different for categories (0% - 20%) and 100%.

The test statistic for the null and alternative hypothesis

Ho: $\upsilon_a = \upsilon_b$

Ha: $\upsilon_a > \upsilon_b$

was the standardized variable: $Z_{a,b} = \frac{\upsilon_a . \upsilon_b}{\delta(\upsilon_a . \upsilon_b)}$

Level of significance used was 5%.

The decision is that accept the null hypothesis (Ho) if $Z_{a,b} < Z_{crit}$

Where $Z_{a,b}$ is the calculated value and Z_{crit} is read from the statistical tables

υ_a and υ_b are grouped index means.

1. **For mean percentage index changes:**

$$\delta(\upsilon_a . \upsilon_b) = \left(\frac{\delta_a^2}{n_a} + \frac{\delta_b^2}{n_b} \right)^{1/2}$$

Where: δ_a^2 and δ_b^2 are variances of a_n and n_b index observations

2. For the mean percentage of daily index increases

$$\delta\ \upsilon_a.\upsilon_b = \left(\frac{p_a(1-p_a)}{n_a} + \frac{p_b(1-p_b)}{n_b} \right)^{1/2}$$

where p_a and p_b are mean percentages of daily index increases.

CHAPTER 4

4.0 DATA ANALYSIS AND FINDINGS

4.1 Data analysis

Mean NSE 20 index for categories (0 – 20)% and 100% were compared because all of the difference is found in comparing the two extreme cloud cover groups. Approximately 85% of all rain occurs on 10% cloud cover days. Partially cloudy days, most of which have no rain are not particularly depressing even when a little rain falls. Therefore one would not reasonably expect significant differences in weather induced mood influences between days with (30 – 70)% cloud cover versus days with (80 – 90)% cloud cover.

HYPOTHESIS 1: mean changes in indexes are not significantly different for category (0 – 20)% & 100%

Ho: $\upsilon_a = \upsilon_b$
Ha: $\upsilon_a > \upsilon_b$

$$Z_{a,b} = \frac{\upsilon_a - \upsilon_b}{\delta(\upsilon_a - \upsilon_b)}$$

$$\upsilon_a = \frac{12.989}{356} \qquad \upsilon_b = \frac{0.710}{49}$$

$$= 0.000365 \qquad = 0.01449$$

$$\delta(\upsilon_a - \upsilon_b) = \left(\frac{\delta_a^2}{n_a} + \frac{\delta_b^2}{n_b}\right)^{1/2}$$

$$\delta_a^2 = \frac{\Sigma(y - \upsilon_a)^2}{N_a} \qquad \delta_b^2 = \frac{\Sigma(y - \upsilon_b)^2}{N_a}$$

$$\delta_a^2 = \frac{0.008243897321 + 0.00570446146 + 0.002497712432 + 0.001971123751 + 0.022905911439}{356}$$

$$= \frac{0.0022905911439}{356}$$

$$= \mathbf{0.0000643}$$

$$\delta_b^2 = \frac{0.00359769}{49}$$

$$= \mathbf{0.000073422}$$

$$\delta\ (\upsilon_a - \upsilon_b) = \left(\frac{0.0000643}{356} + \frac{0.000073422}{49} \right)^{1/2}$$

$$= \left(0.000001498 + 0.00000018 \right)^{1/2}$$

$$= [\,0.000001678]$$

$$= \mathbf{0.0012956}$$

$$Z_{a,b} = \frac{0.000365 - 0.01449}{0.0012956}$$

$$= \mathbf{-10.9022}$$

HYPOTHESIS 2:mean % of positive daily changes are not significantly different for categories (0 – 20)% & 100%.

Ho: $\upsilon_a = \upsilon_b$
Ha: $\upsilon_a > \upsilon_b$

$$Z_{a,b} = \frac{\upsilon_a - \upsilon_b}{\delta(\upsilon_a - \upsilon_b)}$$

$$\delta\left(\upsilon_a - \upsilon_b\right) = \left(\frac{p_a\left(1 - p_a\right)}{n_a} + \frac{p_b\left(1 - p_b\right)}{n_b} \right)^{1/2}$$

p_a and p_b are mean percentages of daily index increases for categories (0 – 20%) and 100%.

$$\upsilon_a = \frac{99.723}{182} \qquad \upsilon_b = \frac{11.857}{22}$$

$$= \mathbf{0.547929} \qquad = \mathbf{0.53895}$$

$$\delta(\upsilon_a - \upsilon_b) = \left(\frac{0.547929\,(1 - 0.547929)}{182} + \frac{0.53895(1 - 0.53895)}{22} \right)^{1/2}$$

$$= \left(0.001361 + 0.011294\right)^{1/2}$$

$$= \mathbf{0.112497}$$

$$Z_{a,b} = \frac{0.547929 - 0.53895}{0.112497}$$

$$= \mathbf{0.0798}$$

4.2 Findings

Hypothesis 1:

$Z_{calc} = 1.96$ $Z_{a,b} = -10.9022$

$-10.9022 < 1.96$

thus accept the null hypothesis.

Hypothesis 2:

$Z_{calc} = 1.96$ $Z_{a,b} = 0.0798$

$0.0798 < 1.96$

thus accept the null hypothesis.

These findings suggest that there is no significant difference in the mean changes in index implying that weather in nairobi has no significant effect on the NSE 20 share index.

CHAPTER 5

5.0 CONCLUSION AND SUGGESTION FOR FURTHER RESEARCH.

5.1 conclusion

The results of the study show that the weather in Nairobi does not significantly affect the NSE 20 share index at the Nairobi stock exchange.

The empirical results of this study contribute to thee previous research findings such as turn of the month effect, January effect, month and quarterly effect are not present in the Nairobi stock exchange. (Kamau, 2003).

The empirical results also imply that aggregate NSE 20 share index appear to be affected by other factors such as indoor trading, and internet trading as compared to those in the developed markets which present significant influence of weather on the stock index. The investigations thus show that there is no abnormal behaviour of stock returns with respect to the prevailing weather conditions.

5.2 suggestions for further research.

It is likely that the quest for a coherent theory of the stock market will continue to stimulate the intellect of academic researchers. It is apparent that, over the years, the field has made much progress and that without such sustained research efforts the issue would remain unresolved. The fresh insights on the speculative component have opened up several avenues for fruitful research.

Akerlof and Yellen (1985) show that even small amounts of irrationality could have significant economic effects. De Long, Schleifer, Summers and Waldmann (1989) observe that noise trading can have an adverse impact on other market participants. The social welfare implications of an irrational and speculative stock market, and the policies to control such behavior could be a profitable area for future research.

References

Agrawal, A. and K. Tandon (1994) "Anomalies or illusions? Evidence from stock markets in eighteen countries," *Journal of International Money and Finance* 13, 83-106.

Altman, E. and A. Eberhart, Summer (1994) "Do seniority provisions protect bondholders' investments?," *Journal of Portfolio Management* 20, 67-75.

Ariel, R.A. (1987) "A monthly effect in stock returns," *Journal of Financial Economics* 18, 161-174.

_____ (1990) "High stock returns before holidays: Existence and evidence on possible causes," *Journal of Finance* 45, 1611-1626.

Banz, R. (1981) "The relationship between return and market value of common stocks," *Journal of Financial Economics* 9, 3-18.

Basu, S. (1977) "Investment performance of common stocks in relation to their price-earning ratios: A test of the efficient market hypothesis," *Journal of Finance* 32, 663-682.

Bernard, V. L. (1993) "Stock price reaction to earnings announcements: A summary of recent anomalous evidence and possible explanations," *Advances in Behavioral Finance*, Russell Sage Foundation, 303-340.

Bhardwaj, R.K. and L.D. Brooks (199) "The January anomaly: Effects of low share price, transaction costs, and bid-ask bias," *Journal of Finance* 47, 553-575.

Blume, M. E., Keim, D. B., and S. A. Patel (1991) "Returns and volatility of low-grade bonds: 1977-1989," *Journal of Finance* 46, 49-74.

Brockman, P. and D. Michayluk (1998) "The persistent holiday effect: Additional evidence," *Applied Economic Letters* 5, 205-209.

Buell, S. G., (1992) "The accuracy of the initial pricing of junk bonds," *Journal of Fixed Income* 2, 77-83.

Cadsby, B. and M. Ratner (1992) "Turn-of-month and pre-holiday effects on stock returns: Some international evidence," *Journal of Banking and Finance* 16, 497-509.

Campbell, J.Y., and R.J. Shiller (1987) "Co-integration and tests of present value models," *Journal of Political Economy* 95, 1062-1088.

_____ (1988b) "Stock prices, earnings and expected dividends, *Journal of Finance* 43, 661-76.

Clore, G. L., N. Schwarz, and M. Conway, (1994), Affective causes and consequences of social information processing, in Jr. Robert S. Wyer, and Thomas K. Srull, ed.: Handbook of Social Cognition, 2nd edition (Lawrence Erlbaum, Hillsdale, NJ).

Cornell, B. and K. Green (1991) "The investment performance of low-grade bond funds," *Journal of Finance* 46, 29-48.

De Bondt, W.F.M., and R.H. Thaler (1985) "Does the stock market overreact?", *Journal of Finance* 40, 793-805.

_____ (1987) "Further evidence on investor overreaction and stock market seasonality," *Journal of Finance* 42, 557-581.

_____ (1990) "Do security analysts overreact?" *American Economic Review* 80, 52-57.

Dechow, P.M., A.P. Hutton, L. Meulbroek and R.G. Sloan (2001) "Short-sellers, fundamental analysis, and stock returns," *Journal of Financial Economics* 61, 77-106.

Dowling M. and Brain M. L. (2002). *Weather, Biorhythms and Stock Returns: Some Preliminary Irish Evidence*, Working Paper, December, University of Dublin.

Eagles, John M., (1994), The relationship between mood and daily hours of sunlight in rapid cycling bipolar illness, Biological Psychiatry 36, 422-424.

Eberhart, A. C. and R. J. Sweeney (1992) "Does the bond market predict bankruptcy settlement," *Journal of Finance* 47, 943-980.

Eleswarapu, V.R. and M.R. Reinganum (1993) "The seasonal behavior of the liquidity premium in asset pricing," *Journal of Financial Economics* 34, 373-386.

Fama, E. (1970b) "Efficient capital markets: A review of theory and empirical work," *Journal of Finance* 25, 383-417.

_____ and K. French (1995) "Size and book-to-market factors in earnings and returns," *Journal of Finance* 50, 131-155.

Fama, E. and K. French, (1992). The Cross-Section of Expected Stock Returns. Journal of Finance 46, 427-465.

Flavin, M. (1983) "Excess volatility in the financial markets: A reassessment of the empirical evidence," *Journal of Political Economy* 91, 929-956.

Forgas, J. P., (1995), Mood and judgment: The affect infusion model (aim), Psychological Bulletin 117, 39–66.

French, K.R. (1980) "Stock returns and the weekend effect," *Journal of Financial Economics* 8, 55-69.

Fridson, M. S. and M. A. Cherry (1990) "Initial pricing as predictor of subsequent performance of high-yield bonds," *Financial Analyst Journal* 46, 61-67.

Frijda, N., (1988), The laws of emotion, Cognition and Emotion 1, 235–258.

Goetzman W.N. and Ning Z. (2002). *Rain or Shine: Where is the Weather Effect*?, Yale ICF Working Paper No:02-27, www.ssrn.com

Gosnell, T.F., A.J. Keown and J.M. Pinkerton (1996) "The intraday speed of stock price adjustment to major dividend changes: Bid-ask bounce and order flow imbalances," *Journal of Banking and Finance* 20, 247-266.

Harris, L. and E. Gurel (1986) "Price and volume effects associated with changes in the S&P 500 list: New evidence for the existence of price pressures," *Journal of Finance* 41, 815-829.

Hensel, C.R. and W.T. Ziemba (1996) "Investment results from exploiting turn-of-the-month effects," *Journal of Portfolio Management*, Spring, 17-22.

Hirshleifer, D. and T. Shumway (2001) "Good day sunshine: Stock returns and the weather," SSRN Working Paper, Forthcoming, *Journal of Finance*.

Hirshleifer D. and Tyler S. (2003). *Good Day Sunshine: Stock Returns and the Weather,* Journal of Finance, Vol. 58, pp. 1009-1032, June 2003.

Hirshleifer D. and Tyler S. (2001). *Good Day Sunshine: Stock Returns and the Weathe*r, Working Paper, Marc, www.ssrn.com

Howarth, E. and M.S. Hoffman (1984) A multidimensional approach to the relationship between mood and weather, *British Journal of Psychology*, 75, 15-23.

Huberman, G. and T. Regev (2001) "Contagious speculation and a cure for cancer: A nonevent that made stock prices soar," Journal of Finance 56, 387-396.

Johnson, E. J., and A. Tversky, (1983), Affect, generalization, and the perception of risk, Journal of Personality and Social Psychology 45, 20–31.

Kahneman, D. and A. Tversky (1986) "Choices, values, and frames," *American Psychologist*, 341-350.

Kamara, A. (1997) "New evidence on the Monday seasonal in stock returns," *Journal of Business* 70, 63-84.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi, (2000a), Losing sleep at the market: The daylight-savings anomaly, American Economic Review, 1005-1000.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi, (2000b), Winter blues: Seasonal affective disorder (SAD) and the January effect, and stock market returns, working paper, University of British Colombia.

Kamstra, M.J.; L.A. Kramer and M.D. Levi (2002) Winter Blues: a SAD stock market cycle, *American Economic Review,* forthcoming.

Krämer, W. and R. Runde (1997) Stocks and the weather: an exercise in data mining or yet another capital market anomaly?, *Empirical Economic*s, 11, 637-641.

Kramer, L. A., (2000), Intraday stock returns, time-varying risk premia, and diurnal mood variation, Department of Economics, Simon Fraser University Working Paper.

Krämer, W. and R. Runde (1997) Stocks and the weather: an exercise in data mining or yet another capital market anomaly?, *Empirical Economic*s, 11, 637-641.

Kunkel, R. and W. Compton (1998) "A tax-free exploitation of the TOM effect: C.R.E.F.," *Financial Services Review* 7, 11-23.

Lakonishok, J. and S. Smidt (1988) "Are seasonal anomalies real? A ninety-year perspective," *Review of Financial Studies* 1, 403-425.

Loewenstein, G., T. O'Donoghue, and M. Rabin, (2000), Projection bias in predicting future utility, University of California, Berkeley Working Paper E00-284.

Loewenstein, G. F., (1996), Out of control: Visceral in uences on behavior, Organizational Behavior and Human Decision Processes 65, 272–292.

Loewenstein, G. F., (2000), Emotions in economic theory and economic behavior, American Economic Review 65, 426–432.

Ma, C. K. and G. M. Weed (1986) "Fact and fancy of takeover bonds," *Journal of Portfolio Management* 13, 34-37.

Mackie, D. M., and L. T. Worth, (1991), Feeling good, but not thinking straight: the impact of positive mood on persuasion, in J. Forgas, ed.: Emotion and Social Judgments pp. 201–219 (Pergamon, Oxford).

Mehra, R., and R. Sah, (2000), Mood, projection bias and equity market volatility, University of California, Santa Barbara.

Mokua E. M. (2003). An empirical study of the weekend effect on the stocks at the Nairobi Stock Exchange, unpublished project University of Nairobi.

Pardo A. and Enric V. (2002). *Spanish Stock Returns: Where is the Weather Effect*? European Financial Management, Vol: 9, No: 1.

Patell, J. and M. Wolfson (1984) "The intraday speed of adjustment of stock prices to earnings and dividend announcements," *Journal of Financial Economics* 13, 223-252.

Petty, R. E., F. Gleicher, and S. M. Baker, (1991), Multiple roles for affect in persuasion, in J. Forgas, ed.: Emotion and Social Judgments pp. 181–200 (Pergamon, Oxford).

Rabin, M. and R.H. Thaler (2001) "Anomalies: Risk Aversion," *Journal of Economic Perspectives* 15, 219-232.

Reinganum, R.M. (1981) "Misspecification of the capital asset pricing: Empirical anomalies based on earnings yields and market values," *Journal of Financial Economics* 12, 89-104.

Rind, B., (1996), Effects of beliefs about weather conditions on tipping, Journal of Applied Social Psychology 26, 137-147.

Roll, R. (1984) "Orange juice and weather," *American Economic Review* 74, 861-880.

_____ (1988) "R^2," *Journal of Finance* 43, 541-566.

Rozeff, M.S., and W.R. Kinney (1976) "Capital market seasonality: The case of stock returns," *Journal of Financial Economics* 3, 379-402.

Saunders, E.M. (1993) Stock Prices and Wall Street weather, *American Economic Review*, 83, 1337-1345.

Samuel D K. (2003) Turn of the month and Jsnusry effect on stock prices at the Nairobi stock exchange, unpublished project, University of Nairobi.

Schwarz, N., (1990), Feelings as information. informational and motivational functions of affective states, in R. Sorrentino, and E.T. Higgins, ed.: Handbook of Motivation and Cognition 2, 527–561 (Guilford Press, New York).

Schwarz, N., and G. L. Clore, (1983), Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states, Journal of Personality and Social Psychology 45, 513–523.

Schwert, G.W. (2001) "Why does stock market volatility change over time?," *Journal of Finance* 44, 1115-1153

Seyhun, N. (1986) "Insiders' profits, costs of trading, and market efficiency," *Journal of Financial Economics* 16, 189-212.

_____ (1998) Investment intelligence from insider trading, MIT Press.

_____ (1984) "Stock prices and social dynamics," *Brookings Papers on Economic Activity* 2, 457-498.

_____ (1991) Market Volatility, MIT press.

Shleifer, A. (1986) "Do demand curves for stocks slope down," *Journal of Finance* 41, 579-590.

Statman, M., (1999), Behavioral finance: Past battles and future engagements. Financial

Analysts Journal 55, 18-27.

Steeley, J.M. (2001) "A note on information seasonality and the disappearance of the weekend effect in the UK stock market," *Journal of Banking and Finance* 25, 1941-1956.

Stickel, S.E. (1985) "The effect of value line investment survey rank changes on common stock prices," *Journal of Financial Economics* 14, 121-144.

Summers, L.H. (1986) "Does the stock market rationally reflect fundamental values?," *Journal of Finance* 41, 591-601.

Thaler, R., (1999), The end of behavioral finance. Financial Analysts Journal 55, 12-17.
Wilson, J. with R. Palenski, 2000. Seasons Of Gold. Auckland: Hodder Moa Beckett.

Tietjen G. H., and D. F. Kripke, (1994), Suicides in California (1968-1977) - Absence of seasonality in Los Angeles and Sacramento counties, Psychiatric Research 53, 161-172.

Weinstein, M. I. (1987) "A curmudgeon's view of junk bonds," *Journal of Portfolio Management* 13, 76-80.

Wright, W. F., and G. H. Bower, (1992), Mood effects on subjective probability assessment, Organizational Behavior and Human Decision Processes 52, 276–291.

Zarowin, P. (1989) "Does the stock market overreact to corporate earnings information?," *Journal of Finance* 44, 1385-1399.

Ziemba, W.T. (1991) "Japanese security market regularities: monthly, turn-of-the-month and year, holiday and Golden Week effects," *Japan and the World Economy* 3, 119-146.

APPENDIX

TABLE I:

2003																						
JAN	DATE	3	6	7	8	9	10	13	14	15	16	20	21	22	23	24	27	28	29	30	31	
	INDEX	1384.98	1446.75	1504.2	1538.12	1565.84	1572.12	1578.21	1551.06	1550.88	1488.59	1507.11	1516.92	1546.19	1551.63	1554.07	1560.51	1559.79	1565.07	1566.62	1510.83		
	CHANGE	22.13	61.76	57.46	33.92	27.72	6.28	6.09	-27.15	-0.17	-62.29	18.52	11.81	27.27	5.44	2.44	6.44	-0.72	5.29	3.55	-57.99		
	% CHANGE	1.62%	4.46%	3.97%	2.26%	1.80%	0.40%	0.39%	-1.72%	-0.01%	-4.02%	1.24%	0.78%	1.80%	0.35%	0.16%	0.41%	-0.05%	0.34%	0.23%	-3.70%		
	%POINTS	30	40	30	10	30	20	10	10	10	10	40	10	10	10	10	10	10	10	10	10		
	CATEGORY	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)		
FEB	DATE	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	23	24	25	26	27	28	
	INDEX	1511.59	1522.99	1530.93	1528.68	1536.75	1535.51	1537.67	1527.96	1519.94	1520.16	1519.69	1518.66	1510.95	1510.07	1507.96	1507.96	1515.94	1510.85	1534.46	1537.42	1557.74	
	CHANGE	0.96	11.4	7.94	-2.26	8.08	-1.24	2.16	-9.71	-8.02	0.21	-0.47	-0.83	-7.91	-0.88	-2.1	0	7.98	-5.09	23.62	2.96	20.32	
	% CHANGE	0.06%	0.75%	0.52%	-0.15%	0.53%	-0.08%	0.14%	-0.63%	-0.53%	0.01%	-0.03%	-0.05%	-0.52%	-0.06%	-0.14%	0.00%	0.53%	-0.34%	1.56%	0.19%	1.32%	
	%POINTS	0	0	30	60	10	30	50	50	50	80	10	10	0	10	10	10	10	10	20	10	10	
	CATEGORY	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	
MAR	DATE	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28	31	
	INDEX	1540.84	1538.27	1550.8	1546.73	1549.68	1569.03	1600.76	1601.57	1601.25	1542.73	1559.28	1560.29	1566.96	1565.47	1564.2	1605.82	1614.42	1607.09	1600.46	1598.81	1608.34	
	CHANGE	-16.91	-2.57	12.53	-4.07	2.94	19.35	31.73	0.81	-0.32	-58.53	16.55	1.02	6.67	-1.49	-1.27	41.62	8.6	-7.33	-6.64	-1.65	9.53	
	% CHANGE	-1.09%	-0.17%	0.82%	-0.26%	0.19%	1.25%	2.02%	0.05%	-0.02%	-3.66%	1.07%	0.07%	0.43%	-0.10%	-0.08%	2.66%	0.54%	-0.45%	-0.41%	-0.10%	0.60%	
	%POINTS	30	10	10	10	10	20	10	20	10	20	20	20	20	20	10	30	30	50	50	20	60	
	CATEGORY	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	
APR	DATE	1	2	3	4	7	8	9	10	11	14	15	16	17	22	23	24	25	28	29	30		
	INDEX	1618.44	1617.27	1620.71	1617.35	1623.01	1624.99	1626.42	1635.08	1653.66	1656.39	1680.14	1692.09	1705.13	1727.73	1751.39	1763.43	1766.48	1787.21	1808.14	1846.63		
	CHANGE	10.11	-1.17	3.44	-3.36	5.66	1.97	1.43	8.66	18.58	2.74	23.75	11.95	13.04	22.6	23.66	12.04	3.05	20.73	20.93	38.49		
	% CHANGE	0.63%	-0.07%	0.21%	-0.21%	0.35%	0.12%	0.09%	0.53%	1.14%	0.17%	1.43%	0.71%	0.77%	1.33%	1.37%	0.69%	0.17%	1.17%	1.17%	2.13%		
	%POINTS	20	20	20	20	30	20	10	10	10	50	50	70	50	80	80	40	20	30	60	80		
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(70-90)	(30-60)	(70-90)	(70-90)	(30-60)	(0-20)	(30-60)	(30-60)	(70-90)		
MAY	DATE	2	5	6	7	8	9	12	13	14	15	16	18	19	20	21	22	23	26	27	28	29	30
	INDEX	1886.36	1917.72	1980.96	2005.74	2101.16	2187.48	2240.29	2270.95	2243.41	2179.16	2119.13	NIC	2057.61	2039.73	2069.29	2093.51	2083.21	2056.39	2040.83	2016.08	2049.89	2074.67
	CHANGE	39.73	31.36	63.24	24.78	95.41	86.33	52.81	30.67	-27.55	-64.25	-60.03	2119.13	-61.52	-17.88	29.56	24.22	-10.3	-26.83	-15.55	-24.75	33.81	24.78
	% CHANGE	2.15%	1.66%	3.30%	1.25%	4.76%	4.11%	2.41%	1.37%	-1.21%	-2.86%	-2.76%	0	-2.90%	-0.87%	1.45%	1.17%	-0.49%	-1.29%	-0.76%	-1.21%	1.68%	1.21%
	%POINTS	90	60	70	70	100	60	60	50	60	60	50	40	70	60	90	70	50	40	50	40	80	100
	CATEGORY	(70-90)	(30-60)	(70-90)	(70-90)	-100	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	-100
JUN	DATE	3	4	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30		
	INDEX	2041.6	2018.84	2015.22	2016.87	2027.48	2021.82	2003.38	2024.05	2015.34	2007.51	1961.03	1961.37	1953.15	1959.6	1979.18	1976.48	1956.79	1966.38	1948.73	1934.96		
	CHANGE	-33.07	-22.76	-3.62	1.65	10.61	-5.66	-18.45	20.68	-8.71	-7.84	-46.48	0.34	-8.21	6.44	19.58	-2.7	-19.69	9.59	-17.65	-13.77		
	% CHANGE	-1.59%	-1.12%	-0.18%	0.08%	0.53	-0.28	-0.91	1.03	-0.43%	-0.39%	-2.32%	0.02%	-0.42%	0.33%	1.00%	-0.14%	-1.00%	0.49%	-0.90%	-0.71%		
	%POINTS	20	40	70	70	60	40	20	40	50	90	100	90	50	60	30	50	40	90	90	40		
	CATEGORY	(0-20)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(70-90)	-100	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(70-90)	(30-60)		
JULY	DATE	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	30	31
	INDEX	1929.44	1934.46	1930.77	1920.52	1917.1	1928.51	1934.15	1940.57	1938.22	1933.66	1929.42	1957.04	1944.44	1934.14	1939.6	1938.14	1936.85	1948.48	1963.21	1978.87	1981.67	1982.71	2005.08
	CHANGE	-5.52	5.02	-3.7	-10.25	-3.41	11.41	5.64	6.42	-2.35	-4.56	-4.23	27.62	-12.6	-10.3	5.46	-1.46	-1.3	11.63	14.73	15.67	2.8	1.04	22.37
	% CHANGE	-0.29%	0.26%	-0.19%	-0.53%	-0.18%	0.60%	0.29%	0.33%	-0.12%	-0.24%	-0.22%	1.43%	-0.64%	-0.53%	0.28%	-0.08%	-0.07%	0.60%	0.76%	0.80%	0.14%	0.05%	1.13%
	%POINTS	50	30	40	40	80	100	40	100	90	80	90	80	100	100	30	60	10	50	80	90	20	40	70
	CATEGORY	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	-100	(30-60)	-100	(70-90)	(70-90)	(70-90)	(70-90)	-100	-100	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(70-90)

TABLE 1:

AUG	**DATE**	**1**	**4**	**5**	**6**	**7**	**8**	**11**	**12**	**13**	**14**	**15**	**18**	**19**	**20**	**21**	**22**	**25**	**26**	**27**	**28**	**29**
	INDEX	2000.98	1998.46	2003.36	2009.05	2043.09	2027.54	2019.42	2029.14	2036.97	2048.42	2048.81	2045.36	2043.03	2049.35	2041.12	2047.58	2056.73	2066.74	2094.63	2124.39	2107.43
	CHANGE	-4.1	-2.52	4.91	5.68	34.04	-15.55	-8.12	9.72	7.83	11.45	0.38	-3.44	-2.33	6.32	-8.23	6.45	9.16	10	27.89	29.76	-16.95
	% CHANGE	-0.21%	-0.13%	0.25%	0.28%	1.69%	-0.76%	-0.40%	0.48%	0.39%	0.56%	0.02%	-0.17%	-0.11%	0.31%	-0.40%	0.32%	0.45%	0.49%	1.35%	1.42%	-0.80%
	%POINTS	90	100	100	100	80	20	70	50	30	30	30	80	40	80	90	100	70	60	70	20	10
	CATEGORY	(70-90)	-100	-100	-100	(70-90)	(0-20)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(70-90)	(70-90)	-100	(70-90)	(30-60)	(70-90)	(0-20)	(0-20)

SEP	**DATE**	**1**	**2**	**3**	**4**	**5**	**8**	**9**	**10**	**11**	**12**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**25**	**26**	**29**	**30**
	INDEX	2070.66	2098.2	2102.29	2115.32	2139.7	2144.05	2161.06	2181.9	2157.97	2169.17	2187.23	2185.03	2182.1	2192.25	2218.03	2247.45	2268.08	2289.73	2293.56	2328.05	2363.74	2379.91
	CHANGE	-36.77	27.54	4.08	13.03	24.38	4.35	17.01	20.83	-23.93	11.21	18.06	-2.2	-2.93	10.15	25.78	29.42	20.63	21.65	3.84	34.49	35.68	16.17
	% CHANGE	-1.75%	1.33%	0.20%	0.62%	1.15%	0.20%	0.79%	0.96%	-1.10%	0.52%	0.83%	-0.10%	-0.13%	0.47%	1.18%	1.33%	0.92%	0.96%	0.17%	1.50%	1.53%	0.68%
	%POINTS	90	90	70	20	30	80	60	70	40	60	50	60	70	50	40	40	30	30	50	20	30	
	CATEGORY	(70-90)	(70-90)	(70-90)	(0-20)	(30-60)	(70-90)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	

OCT	**DATE**	**1**	**2**	**3**	**6**	**7**	**8**	**9**	**13**	**14**	**15**	**16**	**17**	**21**	**22**	**23**	**24**	**27**	**28**	**29**	**30**	**31**
	INDEX	2396.79	2387.46	2398.22	2405.32	2413.38	2415.35	2384.38	2392.74	2392.38	2404.07	2416.65	2445.39	2451.73	2451.09	2461.94	2470.67	2469.6	2476.16	2471.24	2454.13	2457.21
	CHANGE	16.88	-9.33	10.76	7.1	8.06	1.97	-30.97	8.36	-0.35	11.68	12.58	28.74	6.34	-0.64	10.85	8.73	-1.07	6.55	-4.92	-17.11	3.07	
	% CHANGE	0.71%	-0.39%	0.45%	0.30%	0.34%	0.08%	-1.28%	0.35%	-0.02%	0.49%	0.52%	1.19%	0.26%	-0.03%	0.44%	0.36%	-0.04%	0.27%	-0.20%	-0.69%	0.13%	
	%POINTS	70	90	70	30	20	30	50	10	10	10	70	40	40	40	60	40	60	80	50	90		
	CATEGORY	(70-90)	(70-90)	(70-90)	(30-60)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(70-90)		

NOV	**DATE**	**3**	**4**	**5**	**6**	**7**	**10**	**11**	**12**	**13**	**14**	**17**	**18**	**19**	**20**	**21**	**24**	**25**	**27**	**28**	
	INDEX	2450.45	2445.15	2447.94	2446.45	2455.39	2451.87	2464.32	2482.53	2452.54	2458.21	2459.85	2462.3	2457.96	2481.74	2502.97	2554.89	2661.19	2731.05	2736.98		
	CHANGE	-6.75	-5.3	2.79	-1.49	8.93	-3.52	12.45	-1.78	-9.99	5.66	1.65	2.45	-4.34	23.78	21.23	51.92	106.3	69.87	5.92		
	% CHANGE	-0.28%	-0.22%	0.11%	-0.06%	0.37%	-0.14%	0.51%	-0.07%	-0.41%	0.23%	0.07%	0.10%	-0.18%	0.97%	0.86%	2.07%	4.16%	2.63%	0.22%		
	%POINTS	40	60	70	40	10	40	20	20	0	80	20	20	30	80	80	20	20	40	20		
	CATEGORY	(30-60)	(30-60)	(70-90)	(30-60)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(70-90)	(0-20)	(0-20)	(30-60)	(70-90)	(70-90)	(0-20)	(0-20)	(30-60)	(0-20)		

DEC	**DATE**	**1**	**2**	**3**	**4**	**5**	**8**	**9**	**10**	**11**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**29**	**30**	**31**
	INDEX	2743.03	2756.64	2788.83	2777.3	2733.53	2718.08	2707.03	2673.52	2635.03	2601.27	2619.81	2649.9	2661.95	2674.2	2674.99	2675.13	2705.46	2735.24	2742.3	2737.59	
	CHANGE	6.06	13.61	32.2	-11.53	-43.78	-15.45	-11.04	-33.51	-38.49	-33.76	18.54	30.09	12.06	12.24	0.79	0.15	30.32	29.78	7.06	-4.71	
	% CHANGE	0.22%	0.50%	1.17%	-0.41%	-1.58%	-0.57%	-0.41%	-1.24%	-1.44%	-1.28%	0.71%	1.15%	0.46%	0.46%	0.03%	0.01%	1.13%	1.10%	0.26%	-0.17%	
	%POINTS	30	30	20	30	40	30	100	60	10	10	10	10	10	10	20	10	10	10	10	70	
	CATEGORY	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	-100	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(70-90)

2002

FEB	**DATE**	**1**	**4**	**5**	**6**	**7**	**8**	**11**	**12**	**13**	**14**	**15**	**18**	**19**	**20**	**21**	**22**	**25**	**26**	**27**	**28**
	INDEX	1340.31	1337.21	1329.85	1328.15	1332.87	1336.81	1329.75	1329.61	1329.42	1327.44	1332.54	1332.8	1337.72	1335.06	1333.59	1335.52	1332.23	1330.39	1325.08	1313.57
	CHANGE	-3.1	-3.1	-7.35	-1.71	4.72	3.94	-7.06	-0.14	-0.19	-1.98	5.1	0.26	4.93	-2.66	-1.47	1.93	-3.29	-1.84	-5.31	-11.51	
	% CHANGE	-0.23%	-0.23%	-0.55%	-0.13%	0.36%	0.30%	-0.53%	-0.01%	-0.02%	-0.15%	0.38%	0.02%	0.37%	-0.20%	-0.11%	0.14%	-0.25%	-0.14%	-0.40%	-0.87%	
	%POINTS	10	10	10	10	10	10	10	20	30	30	20	10	20	10	10	40	80	30	20	30	
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(70-90)	(30-60)	(0-20)	(30-60)	

MAR	**DATE**	**1**	**4**	**5**	**6**	**7**	**8**	**11**	**12**	**13**	**14**	**15**	**18**	**19**	**20**	**21**	**22**	**25**	**26**	**27**	**28**
	INDEX	1317.78	1309.89	1311.63	1310.14	1289.81	1260.9	1282.36	1265.83	1252.32	1243.98	1232.87	1230.07	1220.64	1223.5	1218.09	1214.54	1208.23	1185.72	1187.04	1183.1
	CHANGE	4.22	-7.89	1.74	-1.49	-20.34	-28.91	21.46	-16.52	-13.51	-8.34	-11.12	-2.8	-9.43	2.86	-5.41	-3.55	-6.31	-22.51	1.32	-3.94	
	% CHANGE	0.32%	-0.60%	0.13%	-0.11%	-1.55%	-2.24%	1.70%	-1.29%	-1.07%	-0.67%	-0.89%	-0.23%	-0.77%	0.23%	-0.44%	-0.29%	-0.52%	-1.86%	0.11%	-0.33%	
	%POINTS	20	70	50	40	30	10	60	70	30	70	20	20	20	30	40	10	10	20	30	10	
	CATEGORY	(0-20)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(70-90)	(30-60)	(70-90)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	

APR	**DATE**	**2**	**3**	**4**	**5**	**8**	**9**	**10**	**11**	**12**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**25**	**26**	**29**	**30**
	INDEX	1179.81	1180.13	1179.26	1177.81	1170.6	1170.2	1168.86	1168.15	1168.88	1164.58	1160.72	1160.03	1149.8	1139.32	1136.87	1136.47	1135.69	1137.41	1129.01	1129.29	1129.33

TABLE 1:

	CHANGE	-3.29	0.32	-0.87	-1.45	-7.21	-0.4	-1.34	-0.71	0.73	-4.3	-3.86	-0.69	-10.23	-10.48	-2.45	-0.4	-0.77	1.71	-8.4	0.28	0.04	
	% CHANGE	-0.28%	0.03%	-0.07%	-0.12%	-0.61%	-0.03%	-0.12%	-0.06%	0.06%	-0.37%	-0.33%	-0.06%	-0.88%	-0.91%	-0.22%	-0.04%	-0.07%	0.15%	-0.74%	0.03%	0.00%	
	%POINTS	30	20	20	30	20	30	40	60	40	60	60	80	80	80	60	40	30	40	70	80	90	
	CATEGORY	(30-60)	(0-20)	(0-20)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(70-90)	(70-90)	
MAY	DATE	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24	27	28	29	30	31
	INDEX	1124.04	1124.54	1133.9	1133.31	1131.9	1125.65	1124.82	1124.52	1123.98	1120.47	1119.04	1122.64	1111.44	1109.66	1080.64	1080.06	1064.24	1055.41	1057.34	1060.4	1061.77	1071.07
	CHANGE	-5.29	0.5	9.36	-0.59	-1.4	-6.26	-0.83	-0.29	-0.54	-3.51	-1.43	3.6	-11.21	-1.78	-29.02	-0.58	-15.82	-8.83	1.93	3.06	1.37	9.29
	% CHANGE	-0.47%	0.04%	0.83%	-0.05%	-0.12%	-0.55%	-0.07%	-0.03%	-0.05%	-0.31%	-0.13%	0.32%	-1.00%	-0.16%	-2.62%	-0.05%	-1.47%	-0.83%	0.18%	0.29%	0.13%	0.88%
	%POINTS	50	50	80	90	90	40	70	20	30	30	40	70	80	60	50	20	40	60	30	60	40	40
	CATEGORY	(30-60)	(30-60)	(70-90)	(70-90)	(70-90)	(30-60)	(70-90)	(0-20)	(30-60)	(30-60)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)
JUN	DATE	3	4	5	6	7	10	11	12	13	14	18	19	20	21	24	25	26	27	28			
	INDEX	1072.52	1069.49	1068.94	1071.52	1071.45	1072.18	1074.73	1083.32	1083.47	1079.2	1079.11	1077.96	1080.8	1075.77	1074.73	1080.6	1079.9	1080.95	1086.62			
	CHANGE	1.45	-3.02	-0.56	2.59	-0.08	0.74	2.54	8.59	0.16	-4.28	-1.13	-1.15	2.84	-5.03	-1.04	5.87	-0.7	1.05	5.68			
	% CHANGE	0.14%	-0.28%	-0.05%	0.24%	-0.01%	0.07%	0.24%	0.80%	0.01%	-0.40%	-0.11%	-0.11%	0.26%	-0.47%	-0.10%	0.55%	-0.07%	0.10%	0.53%			
	%POINTS	20	30	60	50	90	50	100	0	60	70	90	80	80	90	70	80	60	70	30			
	CATEGORY	(0-20)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	-100	(0-20)	(30-60)	(70-90)	(70-90)	(70-90)	(70-90)	(70-90)	(70-90)	(70-90)	(30-60)	(70-90)	(30-60)			
JULY	DATE	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	30	31
	INDEX	1089.51	1090.68	1090.15	1087.05	1079.27	1075.41	1089.82	1088.07	1091.66	1094.86	1099.5	1110.61	1110.69	1112.35	1111.5	1111.91	1114.43	1111.46	1104.67	1103.44	1103.51	1096.82	1097.73
	CHANGE	2.88	1.17	-0.53	-3.11	-7.78	-3.85	14.41	-1.76	3.59	3.2	4.64	11.11	0.08	1.66	-0.85	0.4	2.52	-2.97	-6.79	-1.22	0.07	-6.69	0.91
	% CHANGE	0.27%	0.11%	-0.05%	-0.29%	-0.72%	-0.36%	1.34%	-0.16%	0.33%	0.29%	0.42%	1.01%	0.01%	0.15%	-0.08%	0.04%	0.23%	-0.27%	-0.61%	-0.11%	0.01%	-0.61%	0.08%
	%POINTS	70	80	80	50	80	30	30	50	50	40	50	60	60	60	50	30	10	20	70	30	80	90	90
	CATEGORY	(70-90)	(70-90)	(70-90)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(70-90)	(30-60)	(70-90)	(70-90)	(70-90)
AUG	DATE	1	2	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28	29	30	
	INDEX	1086.18	1080.12	1079.15	1080.51	1079.89	1074.69	1070.38	1067.12	1062.98	1062.03	1065.56	1066.08	1065.03	1062.14	1059.93	1054.68	1047.87	1047.08	1044.18	1043.82	1036.88	1043.38	
	CHANGE	-11.55	-6.06	-0.97	1.36	-0.61	-5.21	-4.31	-3.26	-4.15	-0.95	3.53	0.52	-1.05	-2.89	-2.21	-5.25	-6.81	-0.79	-2.92	-0.34	-6.94	6.5	
	% CHANGE	-1.05%	-0.56%	-0.09%	0.13%	-0.06%	-0.48%	-0.40%	-0.30%	-0.39%	-0.09%	0.33%	0.05%	-0.10%	-0.27%	-0.21%	-0.50%	-0.65%	-0.08%	-0.28%	-0.03%	-0.67%	0.63%	
	%POINTS	100	90	90	100	60	80	90	40	20	60	10	50	100	100	100	70	100	50	60	60	70	100	
	CATEGORY	-100	(70-90)	(70-90)	-100	(30-60)	(70-90)	(70-90)	(30-60)	(0-20)	(30-60)	(0-20)	(30-60)	-100	-100	-100	(70-90)	-100	(30-60)	(30-60)	(30-60)	(70-90)	-100	
SEP	DATE	2	3	4	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30		
	INDEX	1047.41	1043.27	1045.82	1042.38	1036.74	1033	1026.49	1017.27	1018.91	1008.79	1010.69	1010.77	1004.7	1010.17	1021.95	1021.98	1027.79	1031.5	1034.6	1043.08	1043.4		
	CHANGE	4.03	-4.14	2.55	-3.44	-5.64	-3.74	-6.51	-9.21	1.64	-10.12	1.9	0.08	-6.07	5.47	11.78	0.03	5.81	3.72	3.1	8.48	0.33		
	% CHANGE	0.39%	-0.40%	0.24%	-0.33%	-0.54%	-0.36%	-0.63%	-0.90%	0.16%	-0.99%	0.19%	0.01%	-0.60%	0.54%	1.17%	0.00%	0.57%	0.36%	0.30%	0.82%	0.03%		
	%POINTS	90	50	30	20	20	20	20	30	40	30	40	90	60	40	60	50	30	10	20	20	10		
	CATEGORY	(70-90)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)		
OCT	DATE	1	2	3	4	7	8	9	11	15	16	17	18	19	22	23	24	25	28	29	30			
	INDEX	1032.29	1031.1	1028.07	1025.61	1030.23	1032.92	1031.69	1039.82	1039.82	1041.76	1047.53	1053.14	1053.78	1053.51	1056.8	1061.07	1064.86	1072.34	1075.66	1087.5			
	CHANGE	-11.12	-1.19	-3.03	-2.45	4.62	2.69	-1.23	8.13	0	1.94	5.78	5.61	0.64	-0.27	3.29	4.27	3.8	7.47	3.32	11.84			
	% CHANGE	-1.07%	-0.12%	-0.29%	-0.24%	0.45%	0.26%	-0.12%	0.79%	0.00%	0.19%	0.55%	0.54%	0.06%	-0.03%	0.31%	0.40%	0.36%	0.70%	0.31%	1.10%			
	%POINTS	30	30	10	20	40	30	30	50	40	30	20	40	20	80	80	10	30	20	40	60			
	CATEGORY	(30-60)	(30-60)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(0-20)	(70-90)	(70-90)	(0-20)	(30-60)	(0-20)	(30-60)	(30-60)			
NOV	DATE	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29		
	INDEX	1118.44	1134.49	1149.46	1171.12	1180.15	1197.86	1220.79	1230.73	1234.6	1249.25	1239.36	1219.38	1199.45	1187.46	1175.19	1166.01	1153.61	1149.67	1141.62	1148.33	1161.12		
	CHANGE	2.08	16.05	14.97	21.67	9.03	17.7	22.94	9.93	3.87	14.65	-9.89	-19.98	-19.93	-11.98	-12.27	-9.18	-12.4	-3.94	-8.05	6.71	12.79		
	% CHANGE	0.19%	1.44%	1.32%	1.89%	0.77%	1.50%	1.92%	0.81%	0.32%	1.19%	-0.79%	-1.61%	-1.64%	-1.00%	-1.03%	-0.78%	-1.06%	-0.34%	-0.70%	0.59%	1.11%		

TABLE 1:

	%POINTS	90	30	50	70	50	50	40	20	60	40	40	30	20	50	50	40	30	10	20	10	20	
	CATEGORY	(70-90)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	
DEC	DATE	2	3	4	5	9	10	11	13	16	17	18	19	20	23	24	30	31					
	INDEX	1156.59	1159.71	1162.93	1167.18	1165.92	1178.7	1199.87	1225.95	1242.98	1256.53	1270.95	1270.67	1279.09	1298.5	1298.86	1317.45	1362.85					
	CHANGE	-4.53	3.12	3.22	4.25	-1.25	12.78	21.16	26.08	17.03	13.55	14.42	-0.28	8.42	19.41	0.36	18.59	45.4					
	% CHANGE	-0.39%	0.27%	0.28%	0.37%	-0.11%	1.10%	1.80%	2.17%	1.39%	1.09%	1.15%	-0.02%	0.66%	1.52%	0.03%	1.43%	3.45%					
	%POINTS	30	30	80	80	60	40	20	10	30	20	10	10	40	30	50	40	40					
	CATEGORY	(30-60)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(0-20)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)					
2000																							
JAN	DATE	4	5	6	7	11	12	13	14	17	18	19	20	21	24	25	26	27	28	31			
	INDEX	2300.92	2301.09	2309.82	2312.41	2293.54	2302.04	2308.55	2301.92	2300.29	2298.94	2298.81	2291.18	2290.28	2288.47	2306.61	2313.75	2308.23	2308.43	2301.07			
	CHANGE	-2.26	0.18	8.73	2.59	-18.87	8.5	6.52	-6.63	-1.63	-1.35	-0.13	-7.63	-0.89	-1.82	18.14	7.14	-5.52	0.21	-7.36			
	% CHANGE	-0.0983	0.0076	0.3792	0.1122	-0.8161	0.3705	0.283	-0.2874	-0.0708	-0.0587	-0.0057	-0.3319	-0.039	-0.0793	0.7929	0.3093	-0.2386	0.009	-0.319			
	%POINTS	30	10	10	10	10	20	20	10	10	10	10	10	10	50	10	10	10	10	10			
	CATEGORY	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)			
FEB	DATE	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	
	INDEX	2279.5	2280.13	2287.57	2277.19	2273.15	2270.45	2261.13	2265.57	2265.41	2248.77	2244.39	2250.45	2246.16	2247.09	2253.12	2247.52	2275.17	2269.1	2282.44	2276.54	2294.96	
	CHANGE	-21.57	0.64	7.44	-10.39	-4.04	-2.7	-9.32	4.44	-0.16	-16.64	-4.38	6.06	-4.29	0.92	6.04	-5.6	27.65	-6.07	13.33	-5.9	18.42	
	% CHANGE	-0.9376	0.028	0.3263	-0.4541	-0.1773	-0.1189	-0.4105	0.1965	-0.007	-0.7345	-0.1947	0.27	-0.1906	0.0411	0.2687	-0.2488	1.2303	-0.2666	0.5876	-0.2583	0.809	
	%POINTS	10	20	20	10	10	10	10	10	10	10	10	0	10	10	10	20	10	10	10	10	10	
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	
MAR	DATE	1	2	3	6	7	8	9	10	13	14	15	16	17	21	22	23	24	28	29	30	31	
	INDEX	2277.89	2254.84	2248.79	2255.48	2263.92	2248.95	2234.62	2220.54	2214.22	2218.35	2181.01	2183.61	2181.96	2207.9	2210.38	2211.56	2202.87	2218.09	2209.76	2220.78	2233.18	
	CHANGE	-17.07	-23.05	-6.05	6.69	8.44	-14.97	-14.33	-14.08	-6.32	4.13	-37.34	2.6	-1.65	27.39	2.48	1.19	-8.69	23.91	-8.33	11.01	12.4	
	% CHANGE	-0.7437	-1.012	-0.2681	0.2974	0.3741	-0.6612	-0.6372	-0.63	-0.2846	0.1865	-1.6832	0.1192	-0.0756	1.2562	0.1122	0.0537	-0.3929	1.0897	-0.3754	0.4985	0.5583	
	%POINTS	40	40	10	10	10	20	30	20	20	30	20	30	20	20	20	20	20	20	20	30	30	
	CATEGORY	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(0-20)	(30-60)	(0-20)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	
APR	DATE	3	4	5	6	7	10	11	12	13	14	17	18	19	20	25	26	27	28				
	INDEX	2230.39	2244.62	2240.55	2225.11	2213.57	2204.09	2195.85	2206.2	2192.31	2195.5	2190.24	2193.07	2206.23	2197	2190.23	2181.65	2175.89	2182.2				
	CHANGE	-2.79	14.24	-4.07	-15.44	-11.54	-9.48	-8.24	10.35	-13.89	3.19	-5.26	2.83	13.16	-9.23	-6.77	-8.58	-5.76	-13.69				
	% CHANGE	-0.125	0.6383	-0.1813	-0.6891	-0.5186	-0.4284	-0.3738	0.4711	-0.6297	0.1456	-0.2395	0.1292	0.6001	-0.4183	-0.308	-0.392	-0.2638	-0.6293				
	%POINTS	20	20	70	40	20	30	30	40	20	30	30	10	20	20	60	30	30	30				
	CATEGORY	(0-20)	(0-20)	(70-90)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)				
MAY	DATE	2	3	4	5	8	9	10	11	12	16	17	18	19	22	23	24	25	26	29	30	31	
	INDEX	2157.85	2164.78	2161.01	2164.44	2180.13	2183.1	2144.55	2144.33	2106.59	2106.05	2104.62	2109.66	2099.91	2088.67	2095.58	2100.98	2091.31	2075.08	2058.64	2057.75	2052.9	
	CHANGE	-4.35	6.92	-3.77	3.44	15.69	-17.03	-18.55	-0.22	-37.74	-16.31	-1.43	5.04	-9.75	-11.24	6.91	5.4	-9.67	-16.23	-16.44	-0.89	-4.85	
	% CHANGE	-0.201	0.3207	-0.1741	0.159	0.7248	-0.7809	-0.8576	-0.0104	-1.76	-0.7685	-0.0679	0.2395	-0.4622	-0.5353	0.3308	0.2577	-0.4603	-0.7761	-0.7923	-0.0432	-0.2357	
	%POINTS	20	70	50	60	40	70	90	80	70	60	60	30	70	40	40	40	50	60	40	10	20	
	CATEGORY	(0-20)	(70-90)	(30-60)	(30-60)	(30-60)	(70-90)	(70-90)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	
SEP	DATE	7	8	11	12	13	14	15	18	19	20	21	22	26	27								
	INDEX	1977.4	1977.9	1977.4	1977.9	1993.52	1967.96	1965.51	1981.28	1974.96	1980.79	1978.88	1972.88	1978.04	1995.33								
	CHANGE	0.69	0.5	-0.5	0.5	15.62	-25.56	-2.45	15.77	-6.32	5.83	-1.91	-6	-7.41	17.29								
	% CHANGE	0.04%	0.03%	-0.03%	0.03%	0.79%	-1.28%	-0.12%	0.80%	-0.32%	0.30%	-0.10%	-0.30%	-0.37%	0.87%								
	%POINTS	10	20	50	90	50	20	30	90	60	90	50	50	70	90								
	CATEGORY	(0-20)	(0-20)	(30-60)	(70-90)	(30-60)	(0-20)	(30-60)	(70-90)	(30-60)	(70-90)	(30-60)	(30-60)	(70-90)	(70-90)								

TABLE 1:

OCT	DATE	2	5	6	9	11	12	13																						
	INDEX	2001.33	2000.87	1997.73	2021.9	2037.61	2045.61	2047.91																						
	CHANGE	0.01	-2.26	-3.14	24.17	15.7	8	2.3																						
	% CHANGE	0.00%	-0.11%	-0.16%	1.21%	0.78%	0.39%	0.11%																						
	%POINTS	40	20	20	40	50	30	50																						
	CATEGORY	(30-60)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)																						
1999																														
JAN	DATE	4	5	6	7	8	11	12	13	14	15	18	19	21	22	25	26	27	28	29										
	INDEX	2965.85	3003.83	3061.49	3080.74	3119.89	3123.87	3126.58	3121.01	3087.89	3058.99	3037.82	3028.34	3030.51	3014.37	3000.63	2998.78	2991.32	2988	2983.48										
	CHANGE	3.79	37.98	57.66	19.25	39.15	3.98	2.71	-5.57	-33.11	-28.9	-21.17	-9.48	2.17	-16.14	-13.74	-1.85	-7.46	-3.32	-4.53										
	% CHANGE	0.1279	1.2807	1.9195	0.6287	1.2708	0.1276	0.0868	-0.1782	-1.061	-0.9358	-0.692	-0.3121	0.0716	-0.5325	-0.4558	-0.0616	-0.2489	-0.1109	-0.1515										
	%POINTS	10	10	10	10	50	60	10	20	60	70	10	10	20	10	10	10	10	10	10										
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(30-60)	(70-90)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)										
FEB	DATE	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26									
	INDEX	2966.02	2949.36	2946.8	2947.44	2967.38	2949.09	2942.68	2942.78	2939.49	2932.33	2949.27	2949.91	2973.81	2977.6	2930.56	2940.94	2970.13	2970.81	2944.32	2968.68									
	CHANGE	-17.46	-16.66	-2.56	0.64	19.92	-18.27	-6.4	0.1	-3.28	-7.17	16.94	0.64	23.9	3.79	-47.04	10.38	29.18	0.68	-26.49	44.55									
	% CHANGE	-0.5851	-0.5616	-0.0869	0.0219	0.6757	-0.6158	-0.2172	0.0032	-0.1116	-0.2438	0.5777	0.0217	0.8103	0.1273	-1.5798	0.3544	0.9923	0.023	-0.8916	1.5132									
	%POINTS	10	10	10	0	10	10	10	10	20	30	20	30	30	30	30	20	20	10	10	10									
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)									
MAR	DATE	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	30	31						
	INDEX	2986.81	2975.87	2974.51	2974.85	2963.83	2964.1	2909.3	2915.26	2891.81	2891.47	2872.8	2862.09	2863.21	2847.06	2834.99	2839.19	2836.04	2840.06	2859.01	2853.24	2848.79	2814.26	2815.29						
	CHANGE	-2.07	-10.95	-1.35	0.34	-11.02	0.27	-54.79	5.97	-23.46	-0.34	-18.67	-10.71	1.12	-16.16	-12.07	4.2	-3.14	4.01	18.96	-5.77	-4.44	-34.54	1.03						
	% CHANGE	-0.0691	-0.3665	-0.0454	0.0113	-0.3705	0.009	-1.8486	0.2053	-0.8048	-0.0119	-0.6457	-0.3729	0.0392	-0.5643	-0.4239	0.1482	-0.1107	0.1414	0.6674	-0.2019	-0.1558	-1.2123	0.0368						
	%POINTS	10	20	10	20	20	40	30	40	70	60	60	50	50	40	40	10	20	20	30	60	30	70	50						
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)						
APR	DATE	1	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28	29	30									
	INDEX	2806.95	2809.4	2811.52	2812.04	2806.23	2813.47	2802.11	2785.7	2793.95	2786.45	2794.5	2787.49	2793.28	2782.22	2778.47	2777.27	2777.8	2758.88	2753.67	2767.89									
	CHANGE	-8.34	2.44	2.12	0.52	-5.8	7.23	-11.36	-16.41	8.24	-7.5	8.05	-7.01	5.78	-11.06	-3.75	-1.19	0.52	-18.91	-5.22	14.22									
	% CHANGE	-0.2962	0.087	0.0756	0.0184	-0.2063	0.2578	-0.4037	-0.5856	0.296	-0.2684	0.289	-0.2507	0.2075	-0.3959	-0.1348	-0.0429	0.0188	-0.6809	-0.1891	0.5165									
	%POINTS		70	70	50	30	40	20	20	10	50	30	20	30	20	90	60	30	30	50	80									
	CATEGORY		(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(30-60)	(0-20)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)									
MAY	DATE	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28	31								
	INDEX	2763.26	2767.33	2775.6	2768.16	2759.11	2754.13	2740.32	2738.26	2742.96	2750.54	2752.66	2756.01	2758.44	2753.92	2745.42	2743.84	2752.5	2749.37	2765.74	2762.85	2760.05								
	CHANGE	-4.63	4.07	8.27	-7.44	-9.05	-4.98	-13.81	-2.06	4.7	7.58	2.12	3.35	2.43	-4.52	-8.49	-1.59	8.66	-3.13	16.38	-2.89	-2.8								
	% CHANGE	-0.1672	0.1473	0.2989	-0.268	-0.327	-0.1806	-0.5014	-0.075	0.1717	0.2763	0.0771	0.1216	0.0882	-0.164	-0.3084	-0.0578	0.3157	-0.1137	0.5956	-0.1045	-0.1014								
	%POINTS	40	70	80	90	50	30	60	60	70	60	40	40	50	30	30	30	30	40	50	30	90								
	CATEGORY	(30-60)	(70-90)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)								
JUN	DATE	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	30								
	INDEX	2724.97	2748.16	2778.41	2784.95	2802.09	2795.43	2780.62	2771.65	2780.22	2777.07	2783.96	2768.35	2773.97	2751.83	2753.37	2761.15	2756.85	2760.39	2766.02	2761.7	2756.43								
	CHANGE	-35.08	23.18	30.25	6.54	17.14	-6.66	-14.81	-8.96	8.56	-3.15	6.9	-15.61	5.62	-22.13	1.54	7.77	-4.3	3.54	5.63	-4.32	-5.29								
	% CHANGE	-1.271	0.8508	1.1009	0.2353	0.6155	-0.2378	-0.5298	-0.3223	0.3089	-0.1133	0.2484	-0.5608	0.2028	-0.7979	0.0559	0.2823	-0.1556	0.1285	0.2039	-0.1563	-0.1906								
	%POINTS	20	50	80	30	70	80	40	40	80	50	20	40	60	80	40	100	100	80	60	70	40								
	CATEGORY	(0-20)	(30-60)	(70-90)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(70-90)	(30-60)	(0-20)	(30-60)	(30-60)	(70-90)	(30-60)	-100	-100	(70-90)	(30-60)	(70-90)	(30-60)								

TABLE 1:

	INDEX	3343.52	3353.26	3335.81	3344.91	3329.74	3340.27	3335.93	3325.94	3254.27	3277.59	3311.48	3279.4	3275.64	3271.35	3289.38	3257	3252.98	3236.59	3222.27	3224.64	3202.97	3213.3	
	CHANGE	-18.71	9.74	-17.46	9.11	-15.17	10.53	-4.33	-9.99	-71.67	23.32	33.89	-32.08	-3.75	-4.3	18.03	-32.38	-4.02	-16.38	-14.32	2.37	-21.68	10.33	
	% CHANGE	-0.5566	0.2914	-0.5206	0.273	-0.4535	0.3161	-0.1298	-0.2995	-2.155	0.7167	1.0339	-0.9687	-0.1145	-0.1312	0.5512	-0.9843	-0.1236	-0.5036	-0.4425	0.0736	-0.6722	0.3227	
	%POINTS	10	20	20	20	30	60	30	20	20	10	30	20	30	20	30	30	10	10	10	10	0	0	
	CATEGORY	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(0-20)	(30-60)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	
APR	**DATE**	**1**	**2**	**3**	**6**	**7**	**8**	**9**	**14**	**15**	**16**	**17**	**20**	**21**	**22**	**23**	**24**	**27**	**28**	**29**	**30**			
	INDEX	3191.99	3190.67	3185.61	3115.05	3087.82	3072.3	3057.19	3052.21	3056.78	3041.76	3038.38	3033.85	3038.81	3046.97	3036.9	3034.65	3022.68	3016.4	3012.29	3015.01			
	CHANGE	-21.31	-1.33	-5.05	-70.56	-27.22	-15.52	-15.11	-4.96	4.57	-15.02	-3.38	-4.53	4.96	8.16	-10.07	-2.25	-11.97	-6.28	-4.11	2.72			
	% CHANGE	-0.6632	-0.0415	-0.1584	-2.2151	-0.874	-0.5027	-0.4917	-0.163	0.1496	-0.4912	-0.1112	-0.1492	0.1636	0.2686	-0.3303	-0.0742	-0.3944	-0.2076	-0.1362	0.0902			
	%POINTS	30	30	60	20	40	30	60	10	30	20	40	30	80	60	50	50	0	10	10	10			
	CATEGORY	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(30-60)	(30-60)	(0-20)	(30-60)	(0-20)	(30-60)	(30-60)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)			
MAY	**DATE**	**4**	**5**	**6**	**7**	**8**	**11**	**12**	**13**	**14**	**15**	**18**	**19**	**20**	**21**	**22**	**25**	**26**	**27**	**28**	**29**			
	INDEX	3005.69	2991	2974.3	2971.4	2967.23	2957.03	2973.12	2984.11	2984.45	2971.55	2976.12	2984.14	2973.17	2988.06	3009.69	3009.3	3018.07	2969.78	3007.2	3016.44			
	CHANGE	-9.32	-14.69	-16.69	-2.91	-4.17	-10.2	16.09	10.99	0.34	-12.9	4.57	8.02	-10.97	14.89	21.63	-0.39	8.77	-48.29	37.41	9.24			
	% CHANGE	-0.3091	-0.4889	-0.5581	-0.0978	-0.1402	-0.3437	0.5442	0.3696	0.0115	-0.4324	0.1538	0.2696	-0.3676	0.5007	0.7238	-0.013	0.2916	-1.5999	1.2597	0.3074			
	%POINTS	60	100	80	80	70	60	70	70	80	90	50	50	30	30	40	70	10	10	10	10			
	CATEGORY	(30-60)	-100	(70-90)	(70-90)	(70-90)	(30-60)	(70-90)	(70-90)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	(0-20)	(0-20)	(0-20)	(0-20)			
JUN	**DATE**	**2**	**3**	**4**	**5**	**8**	**9**	**10**	**11**	**12**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**25**	**26**	**29**	**30**		
	INDEX	3063.11	2968.83	3000.06	2999.21	3002.63	2997.57	2991.62	2992.41	2990.02	2994.81	2984.43	2969.57	2979.78	2960.34	2945.64	2954.19	2941.29	2900.78	2885.61	2900.27	2907.55		
	CHANGE	46.67	-94.28	31.23	-0.85	3.42	-5.07	-5.95	0.8	-2.39	4.79	-10.38	-14.86	10.21	-19.44	-14.7	8.55	-12.9	-40.51	-15.18	14.66	7.29		
	% CHANGE	1.5472	-3.0778	1.0518	-0.0283	0.1141	-0.1687	-0.1985	0.0267	-0.0799	0.1603	-0.3467	-0.4979	0.3439	-0.6525	-0.4966	0.2903	-0.4367	-1.3771	-0.5232	0.508	0.2513		
	%POINTS	40	50	50	60	40	80	100	80	90	50	40	70	80	60	30	40	10	10	10	10	10		
	CATEGORY	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	-100	(70-90)	(70-90)	(30-60)	(30-60)	(70-90)	(70-90)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)		
JULY	**DATE**	**1**	**2**	**3**	**6**	**7**	**8**	**9**	**10**	**13**	**14**	**15**	**16**	**17**	**20**	**21**	**22**	**23**	**24**	**27**	**28**	**29**	**30**	**31**
	INDEX	2890.66	2890.22	2926.07	2918.98	2907.48	2895.32	2902.59	2900.08	2872.65	2857.56	2856.08	2849.57	2854.34	2846.04	2831.91	2847.78	2846.06	2829.8	2835.79	2844.17	2840.43	2853.07	2868.22
	CHANGE	-16.89	-0.44	35.85	-7.09	-11.5	-12.16	7.28	-2.52	-27.42	-15.09	-1.48	-6.51	4.77	-8.3	-14.13	15.86	-1.71	-16.26	5.99	8.38	-3.74	12.64	15.15
	% CHANGE	-0.5811	-0.0151	1.2403	-0.2424	-0.394	-0.4183	0.2513	-0.0867	-0.9456	-0.5255	-0.0518	-0.2278	0.1674	-0.2908	-0.4965	0.5601	-0.0602	-0.5714	0.2117	0.2956	-0.1314	0.4451	0.5309
	%POINTS	80	80	60	100	80	70	100	90	90	100	100	100	100	100	90	40	0	10	0	11.9	10	10	10
	CATEGORY	(70-90)	(70-90)	(30-60)	-100	(70-90)	(70-90)	-100	(70-90)	(70-90)	-100	-100	-100	-100	-100	(70-90)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)
AUG	**DATE**	**3**	**4**	**5**	**6**	**10**	**11**	**12**	**13**	**14**	**17**	**18**	**19**	**20**	**21**	**24**	**25**	**26**	**27**	**28**	**31**			
	INDEX	2852.01	2868.43	2863.39	2875.37	2866.78	2876.1	2891.81	2925.49	2902.36	2888.61	2889.41	2887.88	2897.98	2895.61	2866.9	2869.97	2873.27	2869.35	2866.98	2862.66			
	CHANGE	-16.21	16.43	-5.04	11.98	-8.59	9.32	15.71	33.69	-23.13	-13.75	0.79	-1.52	10.1	-2.37	-28.72	3.07	3.3	-3.92	-2.37	-4.31			
	% CHANGE	-0.5652	0.5759	-0.1758	0.4183	-0.2988	0.3253	0.5461	1.1648	-0.7906	-0.4738	0.0274	-0.0527	0.3498	-0.0818	-0.9917	0.107	0.1151	-0.1364	-0.0827	-0.1504			
	%POINTS	100	70	80	60	80	100	90	80	60	90	100	100	100	100	80	100	10	10	10	10			
	CATEGORY	-100	(70-90)	(70-90)	(30-60)	(70-90)	-100	(70-90)	(70-90)	(30-60)	(70-90)	-100	-100	-100	-100	(70-90)	-100	(0-20)	(0-20)	(0-20)	(0-20)			
SEP	**DATE**	**1**	**2**	**3**	**4**	**7**	**8**	**9**																
	INDEX	2855.5	2840.16	2834.17	2848.89	2735.19	2736.78	2756.58																
	CHANGE	-7.16	-15.34	-6	14.72	-113.7	1.59	19.8																
	% CHANGE	-0.2501	-0.5372	-0.2112	0.5195	-3.991	0.0582	0.7233																
	%POINTS	90	30	20	70	40	70	70																
	CATEGORY	(70-90)	(30-60)	(0-20)	(70-90)	(30-60)	(70-90)	(70-90)																
OCT	**DATE**	**1**	**2**	**5**	**6**	**7**	**8**	**9**	**12**	**13**	**14**	**15**	**16**	**19**	**21**	**22**	**23**	**26**	**27**	**28**	**29**	**30**	**31**	
	INDEX	2779.9	2782.41	2774.34	2755.59	2768.51	2766.08	2761.73	2765.16	2765.75	2781.47	2764.27	2776.88	2763.96	2792.33	2790.03	2766.59	2771.8	2737.89	2739.69	2734.4	2733.68	2733.68	
	CHANGE	23.32	2.51	-8.08	-18.75	12.92	-2.43	-4.34	3.42	0.6	15.72	-17.21	12.61	-12.92	28.37	-2.3	-23.43	5.21	-33.91	1.81	-5.3	-0.72	0	

TABLE 1:

	% CHANGE	0.8461	0.0904	-0.2903	-0.6758	0.4688	-0.0877	-0.1571	0.124	0.0215	0.5684	-0.6186	0.4562	-0.4652	1.0265	-0.0825	-0.8399	0.1882	-1.2234	0.066	-0.1934	-0.0262	0
	%POINTS	40	50	30	30	40	40	70	100	60	50	60	30	40	40	30	40	0	0	0	0	0	10
	CATEGORY	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(70-90)	-100	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)
NOV	DATE	2	3	4	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30	
	INDEX	2739.78	2731.04	2713.63	2708.91	2642.69	2639.17	2601.2	2636.32	2617.95	2568.86	2541.58	2554.57	2539.84	2520.11	2533.84	2510.77	2558.54	2587.5	2575.67	2580.11	2583.73	
	CHANGE	6.1	-8.74	-17.41	-4.72	-66.22	-3.52	-37.97	35.12	-18.37	-49.09	-27.28	12.99	-14.73	-19.73	13.73	-23.06	47.76	28.97	-11.83	4.44	3.61	
	% CHANGE	0.2233	-0.319	-0.6375	-0.174	-2.4446	-0.1333	-1.4385	1.35	-0.6968	-1.875	-1.0619	0.511	-0.5767	-0.7767	0.5447	-0.9102	1.9023	1.1321	-0.4571	0.1724	0.14	
	%POINTS	50	30	30	90	40	70	70	20	60	10	10	100	100	40	60	50	0	0	0	0	10	
	CATEGORY	(30-60)	(30-60)	(30-60)	(70-90)	(30-60)	(70-90)	(70-90)	(0-20)	(30-60)	(0-20)	(0-20)	-100	-100	(30-60)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	
DEC	DATE	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	28	29	30	31
	INDEX	2582.57	2567.27	2588.11	2595.36	2610.24	2621.38	2624.48	2649.19	2660.34	2664.84	2677.33	2690.86	2732.3	2762.62	2789.34	2825.33	2859.45	2894.19	2922.54	2954.66	2953.64	2962.06
	CHANGE	-1.16	-15.29	20.84	7.25	14.88	11.14	3.1	24.71	11.15	4.5	12.49	13.53	41.43	30.32	26.72	35.99	34.13	34.74	28.35	32.11	-1.02	8.42
	% CHANGE	-0.045	-0.5921	0.8118	0.28	0.5732	0.4268	0.1182	0.9415	0.4209	0.1692	0.4686	0.5055	1.5398	1.1098	0.967	1.2904	1.2079	1.2149	0.9795	1.0988	-0.0345	0.2851
	%POINTS	40	20	10	20	30	40	20	20	10	20	20	10	40	50	20	10	0	0	0	0	0	0
	CATEGORY	(30-60)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(30-60)	(30-60)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)	(0-20)

(0-20)					(30-60)							(70-90)			-100
2.255%	1.168%	0.3705	-0.2489	0.2800	1.624%	0.955%	0.330%	0.1456	-0.1045	0.2961	30.32	0.014%	0.108%	0.3272	4.757%
0.401%	-1.440%	0.2830	-0.1109	0.1182	4.459%	0.168%	0.293%	-0.2395	0.8508	0.6534		2.129%	-0.048%	0.2432	1.209%
0.387%	-1.281%	-0.2874	-0.1515	0.9415	3.972%	1.533%	0.424%	-0.3080	0.2353	1.2734		1.326%	-0.716%	0.6199	-2.315%
-1.721%	0.713%	-0.0708	-0.5851	0.4209	1.802%	0.296%	1.011%	-0.3920	-0.5298	1.0354		1.370%	0.007%	0.1562	0.595%
-0.011%	1.149%	-0.0587	-0.5616	0.1692	1.244%	0.082%	0.149%	-0.2638	-0.3223	1.6020		0.711%	-0.611%	-0.1012	0.332%
-4.017%	0.455%	-0.0057	-0.0869	0.4686	0.522%	-1.282%	-0.077%	-0.6293	-0.1133	0.1911		2.151%	0.006%	-0.1426	-0.644%
0.784%	0.460%	-0.3319	0.0219	0.5055	-0.148%	1.189%	0.036%	-0.1741	-0.5608	-0.1036		3.296%	-0.606%	0.0188	-0.530%
1.796%	0.030%	-0.0390	0.6757	0.9670	-0.080%	0.259%	-0.111%	0.1590	0.2028	-0.4535		1.251%	0.083%	0.8709	-0.126%
0.352%	0.005%	0.7929	-0.6158	1.2904	0.141%	-0.026%	-0.057%	0.7248	0.0559	0.3161		-2.903%	-0.558%	0.1636	0.246%
0.157%	1.133%	0.3093	-0.2172	-0.1236	-0.631%	0.443%	-0.304%	-0.7685	0.2039	-0.1298		1.449%	-0.090%	1.3968	0.284%
0.414%	1.101%	-0.2386	0.0032	-0.5036	-0.525%	0.355%	-0.089%	-0.0679	-0.1906	1.0339		1.170%	-0.482%	-0.2700	0.316%
-0.046%	0.258%	0.0090	-0.1116	-0.4425	2.661%	-0.043%	0.049%	0.2395	0.0233	-0.1145		1.677%	-0.401%	-0.2700	-0.406%
0.339%	-0.231%	-0.3190	0.5777	0.0736	0.536%	-0.199%	-0.075%	-0.5353	1.0346	0.5512		-0.179%	-0.495%	0.1636	0.237%
0.227%	-0.231%	-0.9376	0.3544	-0.6722	-0.454%	-0.275%	-0.279%	0.3308	-0.0287	-0.9643		0.082%	-0.665%	-0.5581	-1.052%
-3.697%	-0.550%	0.0280	0.9923	0.3227	-0.413%	-0.216%	-0.032%	0.2577	-0.0073	-0.6632		-0.389%	0.386%	-0.0978	0.126%
0.064%	-0.128%	0.3263	0.0230	-0.3944	0.596%	-0.061%	-0.395%	-0.4603	0.1659	-0.0415		0.017%	0.008%	-0.1402	-0.099%
0.754%	0.355%	-0.4541	-0.8916	-0.2076	-1.085%	-0.143%	0.244%	-0.7761	0.2428	-0.1584		0.490%	-0.026%	0.5442	-0.271%
0.528%	0.296%	-0.1773	1.5132	-0.1362	0.687%	-0.176%	-0.896%	-0.7923	-0.0014	-0.8740		-0.897%	0.312%	0.3696	-0.208%
-0.031%	-0.528%	-0.1189	-0.0691	0.0902	1.173%	2.625%	0.161%	-0.025%	0.0976	-0.5027		-0.178%	0.186%	0.0115	-0.646%
-0.054%	-0.010%	-0.4105	-0.3665	0.2916	1.171%	0.221%	-0.994%	0.790%	-0.1624	-0.4917		-0.121%	1.885%	-0.4324	0.627%
-0.521%	0.384%	0.1965	-0.0454	-1.5999	0.350%	0.496%	0.188%	-0.124%	0.2724	0.1496		-0.235%	0.278%	-0.0130	0.2823
-0.058%	0.019%	-0.0070	0.0113	1.2597	0.166%	-0.413%	-0.601%	-0.319%	-0.3287	-0.1112		-0.219%	0.365%	-0.1687	-0.1556
-0.139%	0.370%	-0.7345	-0.3705	0.3074	1.434%	-1.576%	0.544%	-0.096%	0.1748	-0.1492		1.432%	-0.1813	0.0267	-0.1008
0.000%	-0.199%	-0.1947	0.1482	-0.4367	0.770%	-0.565%	1.166%	-0.303%	-0.4359	0.2686		1.128%	0.3207	-0.0799	-0.4799
0.529%	-0.110%	0.2700	-0.1107	-1.3771	-0.492%	-1.238%	0.003%	0.000%	-0.2585	-0.3303		-0.205%	-0.7809	-0.4979	0.0836
-0.336%	-0.399%	-0.1906	0.1414	-0.5232	-1.288%	-0.015%	0.568%	1.210%	-0.1551	-0.0742		1.694%	-0.8576	0.3439	0.4424
1.563%	0.321%	0.0411	-0.4037	0.5080	-0.756%	-0.149%	-1.065%	0.777%	-2.4945	-0.3091		-0.400%	-0.0104	-0.5811	-0.4626
0.193%	-2.241%	0.2687	-0.5856	0.2513	-1.213%	0.144%	-0.115%	0.393%	0.6343	-0.3437		-0.168%	-1.7600	-0.0151	0.2113
1.322%	-0.894%	-0.2488	0.2960	-0.0602	-0.869%	-0.138%	0.450%	0.112%	0.0891	0.1538		0.309%	-0.4622	-0.3940	-0.1030
-0.167%	-0.227%	1.2303	-0.2507	-0.5714	1.663%	-0.869%	0.261%	1.2708	-1.3782	0.2696		-0.401%	0.025%	-0.4183	-0.4889
0.815%	-0.767%	-0.2666	-0.3959	0.2117	4.108%	0.133%	-0.119%	0.1276	-1.2156	-0.3676		0.447%	0.802%	-0.0867	-0.1985
-0.263%	-0.292%	0.5876	-1.2710	0.2956	2.414%	-0.113%	0.788%	-1.0610	-0.5207	0.5007		1.350%	0.295%	-0.9456	-0.2424
0.190%	-0.519%	-0.2583	0.2484	-0.1314	1.369%	-1.552%	0.00	-0.2438	0.0755	0.7238		-1.745%	-0.373%	-0.4965	0.2513
1.249%	-1.863%	0.8090	-0.3742	0.4451	-1.213%	1.702%	1.94	0.0217	0.3487	1.5472		1.330%	0.874%	0.5759	-0.5255
2.022%	-0.332%	-0.2681	-0.1088	0.1151	-2.864%	-1.067%	5.61	0.8103	-0.4644	-3.0778		0.195%	-0.9358	-0.1758	-0.0518
0.051%	0.027%	0.2974	-0.7593	-0.1364	-2.755%	0.234%	0.358%	0.1273	0.3037	1.0518		0.203%	-0.8048	-0.2988	-0.2278
-0.020%	-0.074%	0.3741	-0.4141	-0.0827	0.00	-0.442%	0.310%	-1.5798	-0.4588	-0.0283		0.964%	-1.2123	0.5461	0.1674
-3.655%	-0.612%	-0.6612	0.3774	-0.1504	-1.115%	0.111%	1.101%	0.0090	0.3952	0.1141		-0.134%	0.0870	1.1648	-0.2908
1.073%	-0.026%	-0.6300	0.3037	0.1882	10.61	-0.278%	1.435%	-1.8486	0.1690	0.1603		0.709%	0.0756	-0.4738	-0.5652
0.065%	-0.054%	-0.2846	-0.1932	-1.2234	-5.66	-0.123%	1.319%	0.2053	0.4020	-0.3467		-0.389%	-0.1348	-0.9917	0.3253
0.427%	0.136%	-1.6832	0.1705	0.0660	20.68	-0.034%	0.771%	-0.0119	-0.1830	-0.6525		0.451%	0.5165	-0.2501	0.0274
-0.095%	0.799%	-0.0756	-0.3432	-0.1934	-8.71	-0.115%	1.500%	-0.6457	-2.5021	-0.4966		0.523%	0.1473	0.5195	-0.0527
-0.081%	0.227%	1.2562	-0.2447	-0.0262	-0.419%	-0.060%	1.915%	-0.3729	-0.9760	0.2903		0.265%	0.2989	0.0582	0.3498
-0.103%	-0.267%	0.1122	0.1215	0.0000	0.330%	0.062%	0.315%	0.0392	0.1501	1.2403		-0.692%	-0.2680	0.7233	-0.0818
0.628%	-0.389%	0.0537	-0.3835	1.9023	0.999%	-0.368%	1.186%	-0.5643	0.2962	0.5601		0.114%	0.1717	-0.1571	0.1070
-0.072%	0.333%	-0.3929	0.0640	1.1321	-0.136%	-0.331%	-0.792%	-0.4239	0.5166	0.4183		0.231%	-0.1014	-0.1740	0.1240
0.213%	-0.328%	1.0897	-0.3551	-0.4571	-0.996%	-0.215%	-1.612%	0.6674	-0.3002	-0.7906		0.968%	1.1009	-0.1333	0.5110
-0.207%	-0.541%	-0.3754	-0.0466	0.1724	-0.707%	-0.035%	-0.999%	-0.2019	-0.2882	-0.5372		0.855%	0.6155	-1.4385	-0.5767
0.122%	-0.361%	-0.1250	0.3811	0.1400	-0.285%	-0.068%	-1.033%	-0.1558	-0.3079	-3.9910		-0.172%	-0.2378		
0.088%	-0.631%	0.6383	0.0131	1.2079	0.260%	0.151%	-0.781%	0.0368	-0.6142	0.8461		-0.246%	0.3089		
0.533%	0.362%	-0.5186	-0.1661	1.2149	-0.191%	-0.469%	-1.064%	0.0184	-0.0996	0.0904		-0.599%	-0.7979		
1.136%	0.300%	-0.6297	0.3706	0.9795	-0.531%	0.044%	-0.390%	-0.2063	-0.5643	-0.2903		-1.289%	0.1285		
0.173%	0.819%	0.1292	0.2276	1.0988	0.292%	-0.553%	0.270%	0.2578	-0.7453	-0.6758		-0.666%	-0.1563		
-1.594%	0.031%	0.6001	0.1753	-0.0345	0.282%	-0.048%	-0.107%	-0.2684	-0.1974	0.4688		-0.060%	0.3082		
	-0.294%	-0.4183	0.0119	0.2851	-0.075%	-0.312%	1.096%	0.2890	0.4654	-0.0877		-0.882%	0.2204		
-0.067%	-0.239%	-0.2010	0.0000	0.5309	0.601%	-0.128%	1.389%	0.2075	-0.1558	0.0215		-0.911%	-0.8085		
0.142%	5.78	-0.0432	1.1637		0.756%	-0.160%	0.662%	-0.0429	0.1658	0.5684		-0.738%	0.0425		
-0.761%	0.64	-0.2357	-0.5566		0.798%	-2.615%	1.517%	0.0188	-0.3377	-0.6186		0.025%	-0.3090		
1.421%	0.404%	0.035%	0.2914		0.052%	-1.465%	0.028%	-0.6809	-0.2921	0.4562		0.004%	-0.0067		
-0.798%	0.702%	0.025%	-0.5206		0.481%	-0.830%	1.432%	-0.1891	0.4338	-0.4652		0.832%	-0.0556		
0.620%	0.814%	-1.282%	0.2730		0.386%	0.183%	3.446%	-0.1672	-1.0717	1.0265		-0.052%	0.5152		
1.504%	-1.635%	-0.113%	-0.2995		0.562%	0.289%	-0.0983	-0.3270	0.1604	-0.0825		-0.124%	-0.6388		
0.335%	-0.342%	-0.157%	-2.1550		0.019%	0.130%	-0.7437	-0.1806	-0.1109	-0.8399		-0.074%	0.3605		
0.351%	-0.700%	0.1279	0.7167		-0.114%	0.875%	-1.0120	-0.5014	0.1142	0.2233		0.322%	-0.4365		
-0.015%	0.588%	1.2807	-0.9687		0.486%	-0.282%	-0.6372	-0.0750	0.1225	-0.3190		-0.998%	-2.8431		
0.488%	1.114%	1.9195	-0.1312		1.153%	-0.052%	0.1865	0.2763	0.1270	-0.6375		-0.007%	-2.9263		
0.365%	1.796%	0.6287	-2.2151		0.793%	0.242%	0.1192	0.0771	0.0755	-2.4446		-0.395%	-0.2247		
0.508%	2.174%	0.0868	-0.1630		-1.097%	0.069%	-0.0666	0.1216	-0.0286	-0.6968		-0.105%	-0.3209		
-0.072%	1.090%	-0.1782	-0.4912		0.519%	0.014%	-0.3947	0.0882	0.0061	-0.7767		-0.107%	-0.4681		
-0.406%	1.148%	-0.6920	-0.2112		0.832%	-0.065%	0.4985	-0.1640	-0.2800	0.5447		0.264%	-0.0783		
0.067%	-0.022%	-0.3121	1.3500		-0.100%	0.525%	0.5583	-0.3084	-0.0828	-0.9102		-0.465%	0.2440		
0.100%	0.0076	0.0716	-1.8750		0.465%	-0.285%	-0.6891	-0.0578	0.0095	-0.0450		-0.097%	-0.1688		
2.074%	0.3792	-0.5325	-1.0619		1.176%	-0.357%	-0.4284	0.3157	-0.1483	0.5732		0.546%	-0.0949		
4.161%	0.1122	-0.4556	-0.5921		1.326%	1.340%	-0.3738	-0.1137	0.1483	0.4268		0.097%	0.7801		
0.217%	-0.8161	-0.0616	0.8118		0.918%	-0.161%	0.4711	0.5956	-0.0623	41.43		0.265%	-0.0857		

TABLE 3:
CATEGORY (0- 20)

y	Y - U_3
2.255%	0.000525054540
0.401%	0.000019135798
0.387%	0.000017965871
-1.721%	0.000283606109
-0.011%	0.000000063811
-4.017%	0.001584154853
0.784%	0.000067277407
1.796%	0.000335652948
0.352%	0.000015068485
0.157%	0.000003753509
0.414%	0.000020312189
-0.046%	0.000000009238
0.339%	0.000014099931
0.227%	0.000006923383
-3.697%	0.001339919814
0.064%	0.000001003618
0.754%	0.000062513298
0.528%	0.000031893211
-0.031%	0.000000003281
-0.054%	0.000000032178
-0.521%	0.000023469536
-0.058%	0.000000048247
-0.139%	0.000001057126
0.000%	0.000000133225
0.529%	0.000031994048
-0.336%	0.000008966833
1.563%	0.000255876298
0.193%	0.000005264969
1.322%	0.000184430662
-0.167%	0.000001691843
0.815%	0.000072470661
-0.263%	0.000005110737
0.190%	0.000005146535
1.249%	0.000165193457
2.022%	0.000423866314
0.051%	0.000000760408
-0.020%	0.000000027659
-3.655%	0.001309341552
1.073%	0.000123041825
0.065%	0.000001035328
0.427%	0.000021518716
-0.095%	0.000000345748
-0.081%	0.000000197683
-0.103%	0.000000439391
0.628%	0.000044196806
-0.072%	0.000000129299
0.213%	0.000006204401
-0.207%	0.000002907487
0.122%	0.000002497722
0.088%	0.000001550394
0.533%	0.000032382978
1.136%	0.000137534602
0.173%	0.000004382721
-1.594%	0.000242599055
-0.910%	0.000076300225
-0.067%	0.000000091915
0.142%	0.000003171728
-0.761%	0.000052470879
1.421%	0.000212323277
-0.798%	0.000058002508
0.620%	0.000043104092
1.504%	0.000237214069
0.335%	0.000013808796
0.351%	0.000014984625
-0.015%	0.000000047060
0.488%	0.000027535225
0.365%	0.000016132053
0.508%	0.000029624848
-0.072%	0.000000128840
-0.406%	0.000013626992
0.067%	0.000001070453
6.732%	0.008243897321

y	Y - U_3
0.100%	0.000001850799
2.074%	0.000445560629
4.161%	0.001761534294
0.217%	0.000006416446
1.168%	0.000145065910
-1.440%	0.000196879518
-1.281%	0.000154971319
0.713%	0.000056137361
1.149%	0.000140431048
0.455%	0.000024158206
0.460%	0.000024636234
0.030%	0.000000436836
0.005%	0.000000176286
1.133%	0.000136885856
1.101%	0.000129346204
0.258%	0.000008674251
-0.231%	0.000003776477
-0.231%	0.000003791938
-0.550%	0.000026354348
-0.128%	0.000000841903
0.355%	0.000015359998
0.296%	0.000011034994
-0.528%	0.000024173011
-0.010%	0.000000068114
0.384%	0.000017702833
0.019%	0.000000313440
0.370%	0.000016488393
-0.199%	0.000002634584
-0.110%	0.000000538803
-0.399%	0.000013164491
0.321%	0.000012787407
-2.241%	0.000486129821
-0.894%	0.000073457646
-0.227%	0.000003628360
-0.767%	0.000053296860
-0.292%	0.000006506203
-0.519%	0.000023312453
-1.863%	0.000333613268
-0.332%	0.000008730388
0.027%	0.000000401364
-0.074%	0.000000137212
-0.612%	0.000033131214
-0.026%	0.000000010716
-0.054%	0.000000030061
0.136%	0.000002960857
0.799%	0.000069841050
0.227%	0.000006941179
-0.267%	0.000005305671
-0.389%	0.000012408569
0.333%	0.000013637585
-0.328%	0.000008524224
-0.541%	0.000025428214
-0.361%	0.000010539988
-0.631%	0.000035295169
0.362%	0.000015860829
0.300%	0.000011336798
0.819%	0.000073222769
0.031%	0.000000460870
-0.294%	0.000006639634
-0.239%	0.000004088620
0.550%	0.000034398225
0.061%	0.000000950625
0.404%	0.000019422064
0.702%	0.000054521741
0.814%	0.000072290450
-1.635%	0.000255461029
-0.342%	0.000009309871
-0.700%	0.000044019248
0.588%	0.000038965702
1.114%	0.000132396670
1.796%	0.000335656313
5.097%	0.005704461460

y	Y - U_3
2.174%	0.000488574383
1.090%	0.000126895767
1.148%	0.000140189009
-0.022%	0.000000021846
0.008%	0.000000194635
0.379%	0.000017279719
0.112%	0.000002211695
-0.816%	0.000060771348
0.370%	0.000016564487
0.283%	0.000010210334
-0.287%	0.000006292640
-0.071%	0.000000117423
-0.059%	0.000000049467
-0.006%	0.000000095072
-0.332%	0.000008724548
-0.039%	0.000000000634
0.793%	0.000068785391
0.309%	0.000011960740
-0.239%	0.000004086053
0.009%	0.000000206716
-0.319%	0.000007978329
-0.938%	0.000081191549
0.028%	0.000000416015
0.326%	0.000013162685
-0.454%	0.000017438220
-0.177%	0.000001981231
-0.119%	0.000000679405
-0.411%	0.000013989006
0.196%	0.000005427594
-0.007%	0.000000086806
-0.734%	0.000048718300
-0.195%	0.000002501279
0.270%	0.000009396439
-0.191%	0.000002375984
0.041%	0.000000602123
0.269%	0.000009314683
-0.249%	0.000004505299
1.230%	0.000160482049
-0.267%	0.000005296122
0.588%	0.000038948052
-0.258%	0.000004920804
0.809%	0.000071484054
-0.268%	0.000005364594
0.297%	0.000011146304
0.374%	0.000016856765
-0.661%	0.000039020088
-0.630%	0.000035228335
-0.285%	0.000006153508
-1.683%	0.000271159933
-0.076%	0.000000152800
1.256%	0.000167106251
0.112%	0.000002211817
0.054%	0.000000814038
-0.393%	0.000012699413
1.090%	0.000126834793
-0.375%	0.000011486997
-0.125%	0.000000783169
0.638%	0.000045541838
-0.519%	0.000023241682
-0.630%	0.000035186023
0.129%	0.000002746067
0.600%	0.000040521283
-0.418%	0.000014574374
-0.201%	0.000002706982
-0.043%	0.000000004533
-0.236%	0.000003967838
0.035%	0.000000506969
0.025%	0.000000379435
-1.282%	0.000155154052
-0.113%	0.000000581216
-0.157%	0.000001453399
0.761%	0.002497712432

y	Y - U_3
0.128%	0.000002704317
1.281%	0.000173506798
1.919%	0.000382582024
0.629%	0.000044246859
0.087%	0.000001520677
-0.178%	0.000002008127
-0.692%	0.000042973626
-0.312%	0.000007596561
0.072%	0.000001168053
-0.533%	0.000024605743
-0.456%	0.000017579225
-0.062%	0.000000062940
-0.249%	0.000004512669
-0.111%	0.000000554080
-0.151%	0.000001321593
-0.585%	0.000030100141
-0.562%	0.000027573369
-0.087%	0.000000254064
0.022%	0.000000340635
0.676%	0.000050729770
-0.616%	0.000033556781
-0.217%	0.000003263523
0.003%	0.000000157999
-0.112%	0.000000563977
0.578%	0.000037724434
0.354%	0.000015277287
0.992%	0.000105842837
0.023%	0.000000353833
-0.892%	0.000073116092
1.513%	0.000240164702
-0.069%	0.000000106324
-0.366%	0.000010887337
-0.045%	0.000000007984
0.011%	0.000000228735
-0.371%	0.000011156584
0.148%	0.000003412455
-0.111%	0.000000551127
0.141%	0.000003164902
-0.404%	0.000013482379
-0.586%	0.000030149586
0.296%	0.000011052728
-0.251%	0.000004587270
-0.396%	0.000012920082
-1.271%	0.000152397208
0.248%	0.000008118499
-0.374%	0.000011405555
-0.109%	0.000000523035
-0.759%	0.000052243625
-0.414%	0.000014260309
0.377%	0.000017134373
0.304%	0.000011574324
-0.193%	0.000002456107
0.171%	0.000004286238
-0.343%	0.000009404520
-0.245%	0.000004334649
0.121%	0.000002494920
-0.384%	0.000012041046
0.064%	0.000001009428
-0.355%	0.000010153587
-0.047%	0.000000010102
0.381%	0.000017437340
0.013%	0.000000246102
-0.166%	0.000001680247
0.371%	0.000016571559
0.228%	0.000006972614
0.175%	0.000004485169
0.012%	0.000000234134
0.000%	0.000000133225
1.164%	0.000144050301
-0.557%	0.000027045733
0.291%	0.000010749577
-0.834%	0.001971123751

y	Y - U_3
-0.521%	0.000023437531
0.273%	0.000009577102
-0.300%	0.000006917957
-2.155%	0.000448788466
0.717%	0.000056735560
-0.969%	0.000086908641
-0.131%	0.000000896160
-2.215%	0.000474618443
-0.163%	0.000001600881
-0.491%	0.000020677803
-0.211%	0.000003050792
1.350%	0.000192225739
-1.875%	0.000338002099
-1.062%	0.000105140963
-0.592%	0.000030873712
0.812%	0.000071958432
0.280%	0.000010018662
0.118%	0.000002394204
0.942%	0.000095657551
0.421%	0.000020919531
0.169%	0.000004231148
0.469%	0.000025512512
0.506%	0.000029380200
0.967%	0.000100708511
1.290%	0.000176055519
-0.124%	0.000000758164
-0.504%	0.000021820694
-0.443%	0.000016487169
0.074%	0.000001213112
-0.672%	0.000040413850
0.323%	0.000012899689
-0.394%	0.000012811949
-0.208%	0.000002927726
-0.136%	0.000000994093
0.090%	0.000001605794
0.292%	0.000010762740
-1.600%	0.000244432177
1.260%	0.000168022384
0.307%	0.000011824396
-0.437%	0.000016017027
-1.377%	0.000179729469
-0.523%	0.000023684208
0.508%	0.000029648676
0.251%	0.000008280332
-0.060%	0.000000056221
-0.571%	0.000028616222
0.212%	0.000006157858
0.296%	0.000011026386
-0.131%	0.000000901508
0.445%	0.000023196289
0.115%	0.000002297884
-0.136%	0.000000998911
-0.083%	0.000000213749
-0.150%	0.000001297404
0.188%	0.000005050200
-1.223%	0.000140874884
0.066%	0.000001050557
-0.193%	0.000002460210
-0.026%	0.000000010526
0.000%	0.000000133225
1.902%	0.000375898163
1.132%	0.000136571543
-0.457%	0.000017692246
0.172%	0.000004364414
0.140%	0.000003116721
1.208%	0.000154845047
1.215%	0.000156596836
0.980%	0.000103229585
1.099%	0.000128897626
-0.035%	0.000000000381
0.285%	0.000010344518
0.531%	0.000032195593
1.234%	0.004488716474

X

TABLE 4:
CATEGORY 100%

Y	$Y - \upsilon_b$
4.757%	0.00224912
1.209%	0.00014269
-2.315%	0.00054286
0.595%	0.00003370
0.332%	0.00001007
-0.644%	0.00004334
-0.530%	0.00002964
-0.126%	0.00000198
0.246%	0.00000534
0.284%	0.00000725
0.316%	0.00000910
-0.406%	0.00001771
0.237%	0.00000497
-1.052%	0.00011379
0.126%	0.00000125
-0.099%	0.00000128
-0.271%	0.00000817
-0.208%	0.00000495
-0.646%	0.00004359
0.627%	0.00003749
0.282%	0.00000717
-0.156%	0.00000289
-0.101%	0.00000133
-0.480%	0.00002445
0.084%	0.00000048
0.442%	0.00001831
-0.463%	0.00002276
0.211%	0.00000388
-0.103%	0.00000138
-0.489%	0.00002534
-0.199%	0.00000454
-0.242%	0.00000660
0.251%	0.00000561
-0.525%	0.00002915
-0.052%	0.00000044
-0.228%	0.00000587
0.167%	0.00000234
-0.291%	0.00000932
-0.565%	0.00003360
0.325%	0.00000966
0.027%	0.00000002
-0.053%	0.00000045
0.350%	0.00001124
-0.082%	0.00000093
0.107%	0.00000086
0.124%	0.00000120
0.511%	0.00002465
-0.577%	0.00003495
0.710%	0.00359769

NOTE: Y represents NSE 20 share index for the two categories (0 – 20)% and 100% respectively and $Y - \upsilon_a$ and $Y - \upsilon_b$ represents the standard deviations for each of the two groups. The two tables above (table 2 and 3) represent all the data both positive and negative data.

TABLE 5: POSITIVE MEAN RETURNS
CATEGORY (0 – 20)%

	Y	Y - υ_a	y	Y - υ_a	y	Y - υ_a	y	Y - υ_a
	2.255%	0.00029139	0.217%	0.00001096	0.326%	0.00000491	0.228%	0.00001026
	0.401%	0.00000216	1.168%	0.00003844	0.196%	0.00001235	0.175%	0.00001388
	0.387%	0.00000258	0.713%	0.00000272	0.270%	0.00000772	0.012%	0.00002873
	0.784%	0.00000556	1.149%	0.00003608	0.041%	0.00002568	0.000%	0.00003002
	1.796%	0.00015567	0.455%	0.00000086	0.269%	0.00000780	1.164%	0.00003792
	0.352%	0.00000385	0.460%	0.00000078	1.230%	0.00004657	0.291%	0.00000658
	0.157%	0.00001526	0.030%	0.00002686	0.588%	0.00000016	0.273%	0.00000756
	0.414%	0.00000179	0.005%	0.00002942	0.809%	0.00000682	0.717%	0.00000285
	0.339%	0.00000436	1.133%	0.00003429	0.297%	0.00000628	1.350%	0.00006433
	0.227%	0.00001032	1.101%	0.00003057	0.374%	0.00000302	0.812%	0.00000696
	0.064%	0.00002345	0.258%	0.00000840	1.256%	0.00005017	0.280%	0.00000718
	0.754%	0.00000425	0.355%	0.00000370	0.112%	0.00001898	0.118%	0.00001846
	0.528%	0.00000004	0.296%	0.00000636	0.054%	0.00002442	0.942%	0.00001550
	0.000%	0.00003002	0.384%	0.00000268	1.090%	0.00002936	0.421%	0.00000161
	0.529%	0.00000004	0.019%	0.00002792	0.638%	0.00000082	0.169%	0.00001434
	1.563%	0.00010307	0.370%	0.00000318	0.129%	0.00001753	0.469%	0.00000063
	0.193%	0.00001260	0.321%	0.00000514	0.600%	0.00000027	0.506%	0.00000018
	1.322%	0.00005985	0.027%	0.00002715	0.035%	0.00002634	0.967%	0.00001757
	0.815%	0.00000712	0.136%	0.00001700	0.025%	0.00002733	1.290%	0.00005512
	0.190%	0.00001278	0.799%	0.00000632	0.128%	0.00001764	0.074%	0.00002249
	1.249%	0.00004912	0.227%	0.00001030	1.281%	0.00005370	0.323%	0.00000507
	2.022%	0.00021739	0.333%	0.00000463	1.919%	0.00018812	0.090%	0.00002095
	0.051%	0.00002472	0.362%	0.00000346	0.629%	0.00000065	0.292%	0.00000657
	1.073%	0.00002755	0.300%	0.00000614	0.087%	0.00002126	1.260%	0.00005067
	0.065%	0.00002329	0.819%	0.00000736	0.072%	0.00002269	0.307%	0.00000579
	0.427%	0.00000145	0.031%	0.00002668	0.022%	0.00002767	0.508%	0.00000016
	0.628%	0.00000065	0.554%	0.00000000	0.676%	0.00000163	0.251%	0.00000880
	0.213%	0.00001124	0.061%	0.00002371	0.003%	0.00002966	0.212%	0.00001131
	0.122%	0.00001818	0.404%	0.00000206	0.578%	0.00000009	0.296%	0.00000637
	0.088%	0.00002115	0.702%	0.00000237	0.354%	0.00000375	0.445%	0.00000106
	0.533%	0.00000002	0.814%	0.00000707	0.992%	0.00001975	0.115%	0.00001873
	1.136%	0.00003462	0.588%	0.00000016	0.023%	0.00002755	0.188%	0.00001294
	0.173%	0.00001407	1.114%	0.00003206	1.513%	0.00009319	0.066%	0.00002322
	0.142%	0.00001651	1.796%	0.00015567	0.011%	0.00002879	0.000%	0.00003002
	1.421%	0.00007617	2.174%	0.00026438	0.148%	0.00001597	1.902%	0.00018344
	0.620%	0.00000052	1.090%	0.00002939	0.141%	0.00001652	1.132%	0.00003413
	1.504%	0.00009135	1.148%	0.00003595	0.296%	0.00000635	0.172%	0.00001410
	0.335%	0.00000453	0.008%	0.00002919	0.248%	0.00000897	0.140%	0.00001663
	0.351%	0.00000389	0.379%	0.00000285	0.377%	0.00000291	1.208%	0.00004356
	0.488%	0.00000036	0.112%	0.00001898	0.304%	0.00000596	1.215%	0.00004449
	0.365%	0.00000334	0.370%	0.00000315	0.171%	0.00001424	0.980%	0.00001863
	0.508%	0.00000016	0.283%	0.00000702	0.121%	0.00001819	1.099%	0.00003035
	0.067%	0.00002313	0.793%	0.00000600	0.064%	0.00002342	0.285%	0.00000690
	0.100%	0.00002010	0.309%	0.00000569	0.381%	0.00000278	0.531%	0.00000003
	2.074%	0.00023300	0.009%	0.00002904	0.013%	0.00002860		
	4.161%	0.00130513	0.028%	0.00002703	0.371%	0.00000314		
TOTAL	32.983%	**0.00296780**	24.203%	**0.00105919**	19.264%	**0.00099972**	23.273%	**0.00095610**

TABLE 6: POSITIVE MEAN RETURNS
CATEGORY 100%

	Y	$Y - \upsilon_b$
	4.757%	0.0017791379
	1.209%	0.0000448932
	0.595%	0.0000003139
	0.332%	0.0000042904
	0.246%	0.0000086095
	0.284%	0.0000065178
	0.316%	0.0000049662
	0.237%	0.0000091006
	0.126%	0.0000170290
	0.627%	0.0000007706
	0.282%	0.0000065869
	0.084%	0.0000207071
	0.442%	0.0000009409
	0.211%	0.0000107584
	0.251%	0.0000082944
	0.167%	0.0000138384
	0.325%	0.0000045796
	0.274%	0.0000070225
	0.350%	0.0000035721
	0.107%	0.0000186624
	0.124%	0.0000172225
	0.511%	0.0000000784
total	11.857%	0.0019878928