A TEST OF THE WEEKEND EFFECT OF THE UGANDA SECURITIES EXCHANGE

BY

EZRA KIPSANG BETT

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DECLARATION

This management research project is my original work and has not been presented for a degree in any university.

SIGNED _____ DATE 7/11/2011

Ezra Kipsang Bett

D61/7142/2005

This management research project has been submitted for examination with my approval as university supervisor.

SIGNED _____ DATE 7/11/2011

CYRUS IRAYA

LECTURER, DEPARTMENT OF FINANCE AND ACCOUNTING

UNIVERSITY OF NAIROBI

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DEDICATION

TO

My family members and friends

ABSTRACT

Stock market behavior is very crucial in stock returns predictability. The Ugandan capital market has become more dynamic in the recent past and Ugandan population has also become more knowledgeable. Investors are not assured of superior returns when earning power has increased but the time and day of the month can also play a key role. It is in this regard that the knowledge of market variations is of paramount importance. This would in turn signal the right time to buy or sell stocks in the market.

The aim of this study was to test whether weekend effect exist at Uganda Securities Exchange. The study used historical data obtained from USE. The period under review was from 1st September, 2008 to 31st August, 2010. The data obtained was daily closing and opening prices of stocks at the Exchange. These data was used to calculate the daily returns of the stocks at USE. The data obtained was of census type since all the companies that were listed during the study period were considered.

The analysis was done by comparing and analyzing returns on Mondays, Tuesdays and Thursdays. Dummy regression multiple regression method was used. With the use of Excel program the researcher was able to deterimine the significance of the model. The research found out that weekend effect did not exist at the securities exchange over the period under review.

In conclusion therefore, we can say that Uganda Securities Exchange like many other emerging financial markets for example Nairobi Stock Exchange do not exhibit weekend effect anomaly.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Weekend effect refers to the tendency of securities to perform worse on Mondays than the rest of the trading days of the week. This observation has been made on major stock exchanges of the world. Stock returns refers to the increase or decrease in the market value of stocks expressed as a ratio to the previous period market price normally as a percentage.

Capital market efficiency has been a very popular topic for empirical research since Fama (1970) introduced the theoretical analysis of market efficiency and proclaimed the efficient market hypothesis. Subsequently, a great deal of research was devoted to investigate the randomness of stock price movements for the purpose of demonstrating the efficiency of capital markets. Since then, all kinds of calendar and weather anomalies in stock market returns have been documented extensively in finance literature. The most common calendar and weather anomalies include; the January effect, turn of the month, fall, lunar, rainfall and temperature effects. Showing that the market follows a seasonal pattern violates the assumption of weak market efficiency in that by observing the past development of returns, market participants can make extraordinary profits.

Accordingly, Haugen and Joriuon (1996) suggested that calendar effects should not be long lasting, as market participants can learn from past experience. Hence, if a monthly

effect exists, trading based on exploiting a monthly pattern of returns should yield extraordinary profits-at least for a short time.

1.1.1 Efficient Market Hypothesis

Fama (1970) distinguished between three forms of market efficiency, the weak form, semi-strong form and strong form efficiency. His distinction was based on the amount of information impounded into the stock prices. In the weak form efficiency, security prices reflect all past prices (historical information). This implies that in the weak form efficiency, it is impossible to make abnormal profits by using past prices to make sell and buy decisions. In semi strong form efficient market, all publicly available information is reflected in the security price. Therefore, efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns. The strong form efficiency suggests that all public and private information is impounded in security prices. The implication is that no investor even those with insider information will make abnormal profits by using this information except by chance (Sharpe, 2001).

In the early sixties, determination of prices of common stock was such a controversy. The controversy focused on the extent to which successful price changes were independent of each other. The major issue in this case was whether or not share prices followed a random walk. If prices follow a random walk, then past knowledge of prices cannot be used to secure abnormally high rates of return (Malkiel, 2003). As evidence accumulated that the walk is random, the focus of academic attention shifted to an investigation of the kind of market making process which produced such a result, which led to the theory of

efficient markets. This theory assumes that stock prices rapidly adjust to new information in the market.

The assertion that a market is efficient is stronger than the assertion that the successive changes in stock prices are dependent of each other. The weak form of the market hypothesis merely states that the current prices of stock fully reflect all that is implied by historical sequence of prices. It follows that the knowledge of that sequence is of value in forming expectations about future prices. Corhay et al. (1987), in their study of Belgium, New York and London stock exchanges, attributed these variations in the stock exchange to the tax-loss selling hypothesis. It predicts that stock returns will be higher in the first month of a fiscal year. As the fiscal year approaches the end, investors can reduce their taxes by selling stocks on which they lose money during the year. The sale of securities at the end of the year depresses prices which recover at the beginning of the next fiscal year as stock prices move back to their equilibrium prices across the three stock exchanges studied. In Belgium and New York stock exchanges, returns are higher in January and this is attributable to the fiscal year ending in December. Likewise the London stock exchange has high returns in April since the fiscal year end in March.

Capital gains are not taxable in Uganda and therefore the same explanation may not hold. This is because there is no tax incentive to realize capital losses and defer capital gains at the end of a fiscal year. According to Kingori (1995), it is probable that in Kenya, the need for cash increases at the end of the year due to school fees commitments. School fees paid in January is more compared to the other beginning of school terms. The same

may apply to Uganda scenario. This may in turn make investors dispose off their stocks in December and January hence lowering prices and returns in these months.

1.1.2 Uganda Security Exchange

The Uganda Securities Exchange (USE), is Uganda's principal stock exchange. It was founded in June, 1997. The USE is operated under the jurisdiction of Uganda's Capital Markets Authority, which in turn reports to Uganda's central bank, the Bank of Uganda.

The exchange's doors opened to trading in January 1998. At the time, the Exchange had just one listing; a bond issued by the East African Development Bank. Trading was limited to only a handful of trades per week. As of September 2010, the USE traded thirteen (13) listed local and East African companies and has started the trading of Fixed Income instruments. The stock exchange is open 5 days a week and is a member of the African Stock Exchanges Association. The USE operates in close association with the Dar-es-Salaam Stock Exchange in Tanzania and the Nairobi Stock Exchange in Kenya and plans are already underway to integrate the three to form a single East African bourse.

The guiding principle behind stock markets is the creation of an enabling forum where users of capital can obtain the same capital from owners of capital at an agreeable return. Capital markets enable price determination where the market price reflects the "true" and intrinsic value of the share based on the underlying future cash flows. The current state of

Uganda's financial market can be described as an emerging market, which is at an early stage of development.

Over the last 15 years, financial sector reform has been implemented by, among other things, strengthening of the Central Bank, liberalization of the capital account, interest rates and the foreign exchange market; the reintroduction of treasury bills in 1990; privatization – which has seen to the growth and development of the private sector in the country; the establishment of the Capital Markets Authority (to regulate the securities industry in the country) and the establishment of USE to facilitate a vibrant secondary market for issued securities. The removal of restrictions on foreign participation in the sector has resulted into improved efficiency and innovativeness in the sector.

The market generally consists of The Regulator, Capital Markets Authority CMA (Uganda) which is an autonomous body that was set up following the enactment of the Capital Markets Authority Statute 1996 to Regulate, promote and develop Capital markets in the Country. The Market - Uganda Securities Exchange, which is the only Stock Exchange in the country. It is a Self Regulated Organisation (SRO) meaning that it creates, amends and implements its own Rules and Regulations. We also have market players who include broker/dealers (have a license to trade on the USE floor), Investment Advisors, Collective Investment Schemes (who pool the funds of their clients for investment purposes), Registrars and the Investing public.

Uganda stock exchange has over 12 listed companies, 12 equities and 5 corporate bonds. Assets traded include equities, preference shares, treasury bonds and corporate bonds. It trades from 9.00am to 3.00pm, from Monday to Friday with exception of public holidays.

1.2 Problem Statement

Stock market behavior is very crucial in stock returns predictability. The Ugandan capital market has become more dynamic in the recent past and Ugandan population has also become more knowledgeable. Investors are not assured of superior returns when earning power has increased but the time and day of the month can also play a key role. It is in this regard that the knowledge of market variations is of paramount importance. This would in turn signal the right time to buy or sell stocks in the market.

Many of the studies in market efficiency in East Africa have been undertaken in Kenya while less have been done in Uganda, Rwanda, Tanzania and Burundi.

In his study, Birakwete (2007) found out that Uganda Securities Exchange is not efficient in the weak form. The study used the numerical tests for normality; Jarque-Bera and Shapiro-Wilk to determine if successive individual share price and USE-ALSI movement on the USE follow a normal distribution. The results of the two tests showed that stock price movements together with USE do not follow a normal distribution and then used the non-parametric Wald-Wolfowitz Runs test the hypothesis that successive price changes on the USE are independent.

Rasugu (2005) studied the existence of the holiday effect at the Nairobi Stock Exchange and his findings depict the absence of holiday effect. Mokua (2003) studied the weekend effect on stock returns at NSE and concluded that Monday returns are not significantly lower than the other days nor Friday returns significantly higher than the other days of

the week. Ndungu (2003) studied the size effect at the NSE and concluded that the size effect is weakly exhibited at the NSE. The most recent study done by Koech (2008) on weekend effect at NSE depicted an absence of weekend effect. The study covered the period July, 1 2006 to July, 31 2008.

Most of the studies have concentrated on Nairobi Stock Exchange. However, with the coming of East African Community, it would be important that other stock exchanges like Dar es salaam, Uganda and Rwanda be studied to find their market efficiency. It is important to note that the integration of the East African Countries shall motivate both the investors and companies to participate in all the stock markets across the East African Contries. In this regard, the knowledge on market efficiency in all the stock markets shall be on importance to all the participants for obvious reasons. The key question to be answered is; does weekend effect exist at the Uganda Stock Exchange?

1.3 Objective of the study

The study aimed to investigate the existence of the weekend effect at the Uganda Stock Exchange

1.4 Value of the study

Performance of stocks in the market is of major interest to all the stakeholders. Some of the stakeholders include but not limited to; the government, investors, fund managers, financial analyst and academicians.

The Ugandan government as a regulator of the stock market through the Capital Market Authority is able to monitor the performance of the stock market, as a signal of economic stability of the country. The government has aimed at making major reforms through the Uganda Stock Exchange so as to attract both local and foreign investment.

Investors are keen on the day to day performance of the stock market. The findings of this study will indicate whether Uganda Stock Exchange behaves like the other international stock markets. It will benefit the foreign investors whose investment are cross listed and those ones that the government of Uganda is targeting so as to increase the foreign shareholding in the local companies. A rational investor will buy stocks when prices are low and sell them when the prices are high. Knowledge of seasonal patterns caused by anomalies will assist investors in making buy and sell decisions.

Fund managers are charged with the responsibility of identifying and investing in viable projects on behalf of the investors. Findings from the study will help them gauge the performance of the stock market and hence assist in making buying and selling decisions.

Financial analysts offer advice to investors, findings from the study will help them give sound information that will lead investors to make informed decisions. Knowledge of such crucial information on stock variations may assist financial analysts to plan well on when to trade and get abnormal returns and when to hold in order to maximize returns.

Academicians want to contribute to the body of knowledge; the same body of knowledge had been known to change and research is always the only way to study the same phenomenon over time. This research will therefore help in opening up opportunities for

doing further research on market efficiency. It is for this reason that I propose to study the presence of weekend effect in Uganda stock exchange.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter will review the efficient market hypothesis and random walk theory. Some of the stock market anomalies including day of the week, weekend effect will be reviewed. A topic on weekend effect tests will review past studies particularly local studies.

2.2 The Efficient Market Hypothesis and Random Walk Theory

The efficient market hypothesis states that security prices fully reflect all the available information. This theory has been subjected to much research and analysis and has been a major source of discouragement between practitioners and academicians (Copeland (1988), Lofthouse(2001)). Prior to the 1950's, it was believed that traditional investment analysis could be used to outperform the stock market. In 1950's studies emerged (for example Kendal 1953) that changes in security prices followed a random pattern. This generated theorizing and research that led to the efficient market notion (Lofthouse, 2001). At the random reception of new information the percentage price changes should be random. Stock prices may therefore be expected to take a "random walk", hence the random walk theory.

Malkiel (2003) associates the efficient market hypothesis with the idea of a random walk. The random walk hypothesis is a financial theory stating that stock market prices evolve according to a random walk. This term is loosely used in finance literature to characterize

a price series where all subsequent price changes represent random departures from previous prices. The logic of the random walk is that if the flow of information is unimpeded and information is immediately reflected in stock prices, then tomorrow's price change will reflect only tomorrow's news and will be independent of the price changes today. News is by definition unpredictable and thus resulting price changes shall be unpredictable and random. As a result, prices fully reflect all known information and even uninformed investors buying a diversified portfolio at the tableau of prices given by the market will obtain a rate of return as generous as that achieved by experts. Malkiel in his study examined price reaction of equity shares around the announcement of half yearly earnings and reaction to unexpected earnings announcements between January 1990 and March 1996 in the Indian stock market. He used empirical tests to find out whether semi strong form of efficient market hypothesis is applicable to describe stock price behavior in the Indian stock market. He found out that rapid adjustment of stock prices to the earnings announcements leaves no scope for investors to outperform the market by analyzing results and then make investment decisions. A buy and hold strategy for securities is the best investment practice since prices will always reflect all the available information.

Grossman and Stiglitz (1980) in their study of the informationally efficient markets analyzed the behavior of security prices. The impressive evidence supporting this theory suggests that it may be very difficult and expensive to detect securities that are incorrectly priced. An interesting paradox in the market efficiency debate is that a market is efficient if some people (known as noise traders) believe that it is not efficient and

trade something other than new information. Moreover, the market must be sufficiently inefficient to allow informed traders to recover their costs of collecting information or none would be collected. Their main objective was to find out whether fund managers can systematically outperform the market. They used the capital market model to study annual rates of return of thirty four open end mutual funds during the period 1954 to 1963. They found that asset price movement over short horizons are close to a random walk, new information is rapidly incorporated into asset prices and fund managers rarely outperform the stock market on a consistent basis. Lofthouse (2001) and Sharpe (2001) work also found that security prices move in a random manner and that it is impossible to beat the market except by chance. With the emergence of mutual funds and its subsequent trading on the Uganda Stock Exchange, Fund managers would be interested to know if they can exploit the market in the weak form.

Fama (1970) defines an efficient market as the one in which security prices reflect all available information. Studies in the 1970's onwards suggest that the market is less than perfectly efficient. In his study, he made a distinction between three forms of market efficiency. These are weak form efficiency, semi strong form efficiency and the strong form efficiency. Fama (1991) reviewed the literature again in three categories. He replaced weak form efficiency with tests for return predictability, the semi strong form efficiency with event studies and strong form efficiency with tests of private information. Return predictability had the greatest impact. His main objective was to find out whether security prices at any point in time "fully reflect" a particular subset of available information. He studied the daily returns on the 30 Dow Jones Industrial stocks by testing

statistically significant correlation coefficient of lags ranging from one to ten days by use of serial correlation analysis. The findings were that only small percentage of successive price changes could be explained by prior changes. This was also supported by the sign test. These studies appear to show that the market is much less efficient than the academics previously thought. Most researchers show that capital markets are efficient in the weak and semi strong forms but not in the strong forms. Usually capital market efficiency has been tested in large and sophisticated capital markets of developed countries. It would be important to test the same in the developing countries such as in Uganda.

However, any refuting evidence against efficient market hypothesis is labeled as an anomaly and is encompassed in rather ad hoc modifications to the old theory (Lofthouse,2001). It is hoped that the anomalies may eventually be shown to be mistaken or that a new theory will emerge. These ad hoc modifications seem inevitable in the case of efficient market hypothesis because all tests are joint tests. Lofthouse (2001), Sharpe (2001), Copeland (1988) tests an asset pricing theory at the same time as the efficient market hypothesis. They conclude that efficient market hypothesis is simple in principle but remains elusive. Since asset pricing theories like Capital Asset Pricing Model are used to measure normal returns, any anomalies may be either due to efficient market hypothesis or the asset pricing theory used.

There is still a lot of evidence of efficiency or near efficiency and evidence of inefficiency is tricky to interpret because of the joint hypothesis problem (Lofthouse,

2001). On one hand anomalies behavior may be an indication of market inefficiencies, on the other hand, in the event that there is no bias or mis-estimation in computed abnormal returns, the regularity in returns may be indicative of shortcomings in the underlying asset pricing model.

Jaffe and Westerfield (1985) studied the weekend effect in the US, UK, Japan, Canada and Australia and found out that it existed in each of the five countries. They also concluded that foreign investors experience a weekend effect in their respective stock markets independent of the weekend effect in the US. Lakonishok and Mcberly (1990) established that on the New York stock exchange, Monday is the day with the lowest trade volume because there are more sellers than buyers and hence there is a price drop on Monday. The Uganda stock exchange opens for trading from Monday to Friday and closes on Saturday, Sunday and public holidays. Most stock exchanges trade from Mondays to Fridays. Jaffe and Westerfield (1985) found out that of the five stock exchanges studied, Tokyo stock exchange traded on Saturday. The similarity of the trading period worldwide would imply that the effect of settlement delays would affect stock price behavior in a similar manner in most world stock markets.

Lakonishok and Levi (1982) contend that payment for common stock purchased on a Friday will occur after ten calendar days, being five business days for settlement plus one day for cheque clearing together with four weekend days. On the other hand, payment for common stock purchased any other days of the week will occur eight calendar days from the purchase date. These are six business days and two weekend days. The two day delay

makes buyers pay more on Fridays by the two days interest. It is this that partially explains the abnormally high prices on Fridays and low returns observed on Mondays. At the Uganda stock exchange, settlement is done seven calendar days after the transaction. It therefore means that it takes five business days to be completed, an observation by Jaffe and Westerfield (1985) in Canada and USA.

The database about efficient market hypothesis has innumerous empirical studies attempting to determine whether specific markets are in fact efficient, if so, to what extent. Researchers have however documented some technical anomalies which serve to contradict the efficient market hypothesis. The anomalies which have been cited tend to work against the efficiency of the stock market. Such anomalies include the January effect, small firm and weekend effects (Brusa, Liu and Schalman, 2005)). Findings from research on these anomalies show that stock markets efficiency (especially the weak form) may not be efficient. The weekend effect is a situation where stock returns on Monday are significantly negative and are lower than returns of the other days of the week. The weekend effect and its effects are some of the anomalies that have been uncovered as posing a challenge to the efficient market hypothesis especially in the weak form. Some of the researchers who have studied the calendar anomaly known as the Monday or weekend effect are for example Cross (1973) and Schwer (1990). Results of these studies show that stock rating on Monday are significantly negative and are lower than returns of other days of the week.

Main findings suggest that calendar and weather anomalies are not caused by market psychology or institutions but instead reflect a sorting of data such that the anomalies have unusual announcement-day returns. The link between the anomalies and macroeconomic announcements implies that calendar and weather anomalies are not necessarily evidence of market inefficiency. Instead it appears that the market's response to news causes calendar and weather anomalies, which is consistent with market efficiency.

2.3 Stock Market Calendar Anomalies

The Efficient Market Hypothesis became controversial especially after the detection of certain anomalies in the capital markets. Anomalies are irregularities or inconsistencies that conflict with the efficient market hypothesis, according to which security prices should behave in a random manner. Some of the main anomalies that have been identified include; day of the week effect, weekend effect, January effect, holiday effect and turn of the month effect, over or under reaction of stock prices to earnings announcement, weather and small firm effect among others.

The day of the week effect is an anomaly according to which differences in the distribution of stock returns for each day of the week may be found. Accordingly, the average return on Monday is significantly less than the average return during the other days of the week.

Gibbon and Hess (1981) examined the asset returns for each day of the week effects. Researchers generally assume that the distribution of stock returns is identical for all days of the week- a convenient statistical assumption but not a necessary condition of market equilibrium. Nevertheless, there are reasons to suspect that the distribution of returns may vary according to day of the week, the most obvious being the impact of weekends on Mondays returns. Their objective was to find out whether seasonal daily variations are consistent for both equity stock returns and treasury bill returns. They used the S & P 500 and equal weighted portfolios constructed by the Centre for Research in Security Prices for the period July 2, 1962 to December 28, 1978 and for several shorter periods. They found that most obvious manifestation of the daily seasonal effect is the strong and persistent negative mean returns on Monday for stocks and below average returns for bills on Mondays. Uganda Stock Exchange operates in a country with government treasury bills and it would be important to find out if the day of the week effect exists given the fact that treasury bills are issued by the government.

Evidence from equity markets worldwide indicate that the day of the week anomaly appears to fade from the moment of the distribution of the daily returns. The studies report highly significant pair –wise weekend effects in high moments when comparing the first and last trading days of the week. They observe a pattern of high returns around the middle of the week (Tuesday and Wednesday) and lower returns towards the end of the week (Thursday and Friday). A probable explanation of the phenomenon appears to be information dissemination. Corporate announcements released after closing of the last day of the week spillover to the opening of the first trading day, increasing its variability

and carrying the closing sign. This indicates that Friday being the last day of the week has become significant in that Monday returns are a reflection of Friday returns. Such intra-day variability is a clear indication of market inefficiency. Previous studies show a clear indication that developed markets are affected by this anomaly. It is in this regard that it is important to find out if the market anomaly exists in a developing market like the Uganda Stock Exchange.

According to French (1980), weekend effect is the tendency of stock values and prices to be low on Mondays and increase in value on the other days. The theory holds that Friday's returns are significantly higher than the rest of the days and that Monday returns are significantly lower than the other days of the week. In other words, the stock market tends to start the week weak and close the week strong.

2.4 Empirical Studies on Weekend Effects

Several weekend effect tests have been carried out in the past. Most of the studies have shown that weekend effect exists in some markets on particular periods. However, some studies have shown absence of weekend effect.

French (1980) in his study of the weekend effect on stock returns aimed at finding if there is a profiting strategy that could be used in the stock market. In his study, he used the calendar time hypothesis and the trading time hypothesis to analyze daily returns of stocks. He studied the Standard and Poor composite portfolio for the period 1953-1977 and found out that there is a tendency for returns to be negative on Mondays whereas

they are positive on the other days of the week. He notes that these negative returns are caused only by the weekend effect and not by the 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. Investors at the Uganda stock exchange would like to have a guiding strategy as to when to invest so as to make substantial gains.

According to Kamara (1997), security prices are supposed to be informationally efficient. Some of the strongest evidence challenging the hypothesis that security prices are informationally efficient comes from the discovery of puzzling patterns in the behavior of asset prices. Equity returns on Monday are significantly negative and are significantly lower than the other days of the week. His main objective was to find out whether stock market seasonality affects the small caps stocks and large cap stocks equally in the US stock market. He examined the daily returns for the Standard and Poor 500 and a small cap index (the smallest capitalization decile of NYSE stocks) for the period July 3, 1962 to December 31, 1993. His findings show that the S&P has no significant Monday effect after April 1982, yet he finds the Monday effect undiminished from 1962-1993 for a portfolio of smaller US stocks.

Steeley (2001) observed that there is a strong weekly pattern in the announcement dates of major macroeconomic news in UK. In particular these market wide events are clustered on Tuesday, Wednesday, and Thursday and scarcely occur on Monday and Fridays. This means all other things equal the extremes of the week require less information collection on the part of the market participants. This low cost environment

could be particularly important on Mondays when investors have already had three relative information sparse days within which to evaluate their portfolios. While this low cost environment could favour equally buying and selling opportunities for investors, the evidence that points to brokers making more buy than sell recommendations during the week suggest that Mondays are more likely to be dominated by investor selling activity. This could depress and so produce a significantly negative return over the weekend. His objective was to find out the relationship between the intra-week information seasonality and return seasonality in the UK stock market. He used the daily returns on the Financial Times Stock Exchange (FTSE 100) index and the announcement data on the macroeconomic information variables. The study covered the period April 3, 1991 to May 19, 1998. He found that there is no evidence of a weekend effect or any other day of the week related behavior. It would be important to study the stock market returns at the Uganda Stock Exchange for any seasonality since the weekend effect could appear in certain years and not in others. The fact that there are trading strategies (buying stocks on Monday and selling on Friday) for higher returns is a challenge to market efficiency which purports that there are no trading rules to make excess returns.

Jaffe & Westerfield (1985a) studied the stock market returns of five countries being the USA, UK, Japan, Canada and Australia. Their study aimed at establishing whether the weekend effect existed in the five countries. They compiled daily record of returns for stock indexes for the five countries. For each day, they computed the return as a percentage change in the value of the index from the previous day using the closing prices. The specific foreign indexes studied and the time periods are: Japan, the Nikkei

Dow from January 5, 1970 to April 30, 1983. Canada, the Toronto stock exchange index for the period January 2, 1976 to November 30, 1983. Australia, the Statex Actuaries index from March 1, 1973 to November 30, 1982 and in the US used the Standard and Poor's 500 composite index from July 2, 1962 to December, 30 1983. They find a negative average Monday return and high average Friday and Saturday return for each index. In addition, they find that the lowest mean returns for the Japanese and Australian stock markets occur on Tuesday. They concluded that the so-called weekend effect is significant in the five countries. Wong, Hui & Chan (1992), Condoyanni et al. (1987) in their respective studies also concluded that the weekend effect is significant in the five countries. Uganda stock exchange has a five trading day period in a week unlike some stock exchanges studied for instance the Tokyo stock exchange which trade on Saturdays. It would be important to find out if the Uganda stock exchange exhibits the same findings.

Studies investigating stock market anomalies in East Africa include Mokua (2003), Rasugu (2005), Osman (2007) and Koech (2008).Mokua (2003) objective was to establish whether or not stock returns at the NSE are affected by the weekend effect variations. In his study, he used the daily stock returns and equality of means to test for the seasonality in a number of stocks quoted at the NSE for the period April 1, 1996 to March 31, 2001. He found out that Monday returns are not significantly lower than the other days nor are Friday returns significantly higher than the other days of the week. His findings depict absence of the weekend effect on the NSE for the period under study. Given the dynamic market activities and the level of investor awareness, it would be

important to find out whether the stock returns at the NSE depict the weekend effect anomaly.

Osman (2007) in his study of the holiday effect attempted to find out if stocks listed at the NSE exhibit higher returns on average on the days preceding holidays. His study covered a period on nine years being January 1998 to December 2006 taking into account the eight day window, being four days before and four days after the holiday. His population of study consisted of all the companies constituting the AIG index, 20 of them constituting the NSE 20 share index. He used regression on the AIG index and correlation analysis in his study. Correlation analysis was used to test for multicollinearity between an indicator and the index. A low correlation coefficient suggests that the relationship between the two variables is weak or non-existent. A high correlation coefficient indicates that a dependent variable will most likely change when the independent variables change. He found no holiday effect on stock returns at the NSE and hence a strategy of investing around holidays cannot be used by investors. Rasugu (2005) in his study of the holiday effect found no holiday effect at the NSE.

2.5 Conclusions

Weekend effect has been experienced in many stock exchanges across the world. A test on weekend effect is one of the ways of determining whether or not the market is efficient in the weak form. Several studies have also shown that market is efficient especially in the emerging markets.

While much has been undertaken in testing market efficiency in Kenya, less has been done in other countries of East Africa Community countries. As we move towards the East African Community we are likely to see increased trading across the borders within the community. It is therefore important that market efficiency of the concerned stock exchanges is determined for obvious reasons.

This study will be one of the first studies done on market efficiency in Uganda Stock Exchange. I did not find any evidence that such a study had been undertaken in the same securities exchange.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the methods of conducting the research. It illustrated the quantitative research design, defined the population and sample and describe data collection methods and data analysis.

3.2 Research Design

This was a descriptive research. It involved gathering of data (daily stock prices) at Uganda Stock Exchange and analyzing data statistically to determine the presence of weekend effect at the exchange.

3.3 Population

The population of interest for this study consisted of all the thirteen companies listed in Uganda Securities Exchange for the period under study. The study period was from September 1, 2008 to August 31, 2010. This period comprised of 104 weekends meaning that we had adequate data to ensure acceptable accuracy levels. The companies are tabulated as shown in Appendix I;

3.4 Data Collection

The study used secondary data obtained from the USE. Daily prices for each stock were downloaded from Uganda Securities Exchange Website for every trading day as from

September 1, 2008 to August 31, 2010. These data were readily available and authentic because they were sourced from the official website of Uganda Securities Exchange

3.5 Data Analysis

Daily returns were computed using the following formula;

Daily Returns= (Closing price-Opening price)/Opening price

Following French (1980) and Keim & Stambaugh (1984), and others like Schwert (1990), regression model was used to analyze the returns. Regression analysis has been the most preferred method of analyzing returns among researchers. Regression analysis was used to regress Monday and Thursday returns against the rest of the week. Monday and Thursdays returns were used because Uganda Stock Exchange trades in stocks on Monday, Tuesday and Thursday only.

The following model was used;

$$R_t=\beta_0+\beta_1D_1+\beta_2D_2+\beta_3D_3+\beta_4D_4+\varepsilon_t$$

Where;

R_t - the daily market return at time t

β_0 – is the intercept, that is , value of R_t when all predictor variables take the value zero

$\beta_1, \beta_2, \beta_3, \beta_4$, – are the mean returns for each day of the week

D_1- D_4- are dummy variables such that:

D_1=1, if t is a Monday and D_1=0 for all other days

D_2=1, if t is a Tuesday and D_2=0 for all other days

D_3=1, if t is a Wednesday and D_3=0 for all other days

D_4=1, if t is a Thursday and D_4=0 for all other days

ε_t is the error term at time t.

If the Uganda stock exchange exhibited a weekend effect, then, the estimated coefficient β_1 was expected to be negative and statistically significant and Monday returns significantly lower than returns during the rest of the week.

The regression model was used to find out if there existed a relationship between stock market returns and the day of the week among firms listed at the Uganda Securities Exchange. The daily fluctuations were investigated to determine whether or not seasonality existed in the stock market. To test for equality on the mean returns, the independent sample test was used for the evaluation of the null hypothesis in which all Monday and Thursday mean returns were compared with the rest of the other days.

The F-statistic tests were used to test equality of means across all the four days from Monday to Thursday. F-statistic was calculated for each stock and then compared with the F-critical. If Thursday mean for the period was highest and T-statistic then it suggested a tendency for higher returns on the last trading day of the week thus indicating the presence of weekend effects on those securities.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The main aim of this study was to determine the presence of Weekend effect at Uganda stock exchange. This primary involved analyzing the returns of stocks on Monday, Tuesday and Thursday over the entire study period, that is, from 1st September, 2009 to 31st August, 2010.

The returns were computed by using closing and opening prices of each day using the formula

Returns= (Closing price-Opening price)/Opening price.

The opening and closing prices of stocks were obtained from the USE website. Appendix II shows the returns of the individual companies that traded at USE.

To test for the weekend effect at the Securities Exchange, the mean returns of all the companies were computed to give mean returns on Monday, Tuesday and Thursday. These three days constituted the variables in the linear regression equation.

4.2 Dummy multiple linear regressions

In analyzing the data, dummy variables were created. The linear regression is of the form

$R_t = \beta_0 + \beta_2 D_2 + \beta_4 D_4 + \varepsilon_t$

Where

R_t- Daily Market return at time t

β_1, β_2, β_4 are the mean returns on Monday, Tuesday and Thursday respectively.

D_2 and D_4 are the dummy variables

ε_t is the error term whose mean is zero

The returns for Mondays, Tuesdays and Thursdays were uploaded in an excel sheet. The respective mean returns were calculated and found to be as follows

Day	**Mean Returns**
Monday	0.00010601
Tuesday	0.00444309
Thursday	-0.00474217

The regression equation was

$R_t = 0.00010601 + 0.00444309D_2 - 0.00474217D_4$

$R_{Monday} = 0.00010601$

$R_{Tuesday} = 0.00010601 + 0.00444309 = 0.0045491$

$R_{Thursday} = 0.00010601 - 0.00474217 = -0.00463616$

To get mean returns relative to Monday returns, that is, taking Monday returns to be zero, we get

Monday	Tuesday	Thursday
0	0.000444309	-0.00474217

4.3 Significance of the Regression Model

The computed F is shown in Appendix III. The F calculated is 1.63694922. The F crit. (from tables) is 3. This clearly indicates that $F_{calc} < F_{critical}$ This demonstrate that the researcher cannot reject the null hypothesis, H_o. that is , the Monday returns are not significantly different from Tuesday and Thursday returns.

The Coefficient of Determination R^2 =1-SSE/SSTx100%=(1-0.18677147/0.18972543)x100%=1.5%.

This is a very low value of R^2 It means that 98.5% of Monday returns can be explained by other factors and chance other than by Tuesday's returns. This confirms that there is no weekend effect at Uganda Stock Exchange.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter will discuss the conclusions and limitations of the study. It will also make recommendations for further research on weekend effect especially in emerging financial markets.

5.2 Summary

The objective of the study was to investigate whether Uganda Securities Exchange exhibit weekend effect variation on the stocks traded. Previous studies undertaken in the world have found the existence of seasonality in stock returns. Findings in the emerging financial markets have produced results that suggest that seasonality exists in these markets. In this study, regression models established and corresponding R-square values shows that regression models can be used to analyze returns of stocks for companies listed at Uganda Stock Exchange.

On the basis of the regression done on Monday returns versus the other days and on Thursday returns versus the other days, the researcher failed to reject the null hypothesis since the p-value falls within the acceptance region. Thus from the tests carried out, this study concludes that Monday returns are not significantly lower than the other days nor are Thursdays significantly higher that the other days of the week. The researcher

therefore concludes that there is no significant difference on the returns at the Uganda Securities Exchange, hence no weekend effect detected.

5.3 Conclusion

The lack of seasonality at the USE can be explained by several factors among them; lack of tax incentives to dispose stocks. type of investors. and level of market development and investor awareness among others. In Uganda, just like in Kenya. unlike the developed economies. capital gains are not subjected to taxation hence the investors in this market are not under any pressure to dispose off their stocks, thereby depressing the returns.

The Uganda Securities Exchange is relatively a new market. It may be characterized by both speculative and long term investors. The long terms investors hold stocks for longer period of time unlike the speculators who hold stocks for speculative reasons. Long term investors normally hold stocks for the purpose of gaining dividends as well as capital appreciations. They can use shares as securities for accessing commercial loans. Where most investors have long term motives, the share prices and returns are likely to be fairly stable over long periods of time. It is possible then that the USE is characterized by such long term investors who would cause neutrality in stock returns during the period of the study.

The USE is dominated by informed investors. These are individuals, brokers and institutional investors. These players in the market have near perfect information, and hence all arbitrage opportunities are eliminated.

5.4 Limitation of the study

The study used data spanning for two years. It was later found out that trading did not take place during some days. In such instances the returns of the entire week were ignored so that a complete set of returns for the week were maintained for comparability reasons.

Another short coming is that the market trades in equities only three days a week, unlike other markets for example Nairobi Stock Exchange which trades five days a week.

5.5 Recommendation for further research

Other studies on season variations in returns should be done in this market. For example a study to find out possible causes of the Calendar effects.

Knowing that there is no weekend effect at Uganda stock exchange is not enough. Further research should be done to determine the factors that explain the non-existence of the weekend effect at the Securities Exchange.

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APPENDIX I

Listed Companies at Uganda Stock Exchange

1	British American Tobacco Uganda
2	Bank of Baroda Uganda
3	Development Finance Company of Uganda Ltd
4	East African Breweries Limited
5	Equity Bank Limited
6	Jubilee Holdings Limited
7	Kenya Airways
8	KCB Group
9	National Insurance Corporation
10	New Vision Printing and Publishing Company Ltd
11	Stanbic Bank Uganda
12	Uganda Clays Limited

APPENDIX II-INDIVIDUAL COMPANY RETURNS

	BATU			BOBU			DFCU			EABL		
Week	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur
1	-0.0045	-0.027	0.0000	0.0055	0.0055	0.0054	0.0123	0.0000	-0.024	0.0000	0.0170	-0.017
2	0.000	0.000	-0.029	0.151	0.083	0.038	0.000	0.000	0.000	-0.039	-0.004	0.045
3	0.005	0.000	0.005	0.000	0.147	0.032	0.000	0.006	0.000	0.009	-0.010	-0.006
4	0.026	0.000	0.000	0.023	-0.027	-0.027	0.020	0.000	-0.020	0.007	0.033	-0.009
5	0.000	0.000	-0.025	-0.028	-0.029	-0.030	-0.040	-0.042	0.022	-0.121	-0.030	-0.105
6	0.000	0.000	0.000	0.000	-0.036	-0.038	0.000	0.000	-0.027	-0.029	-0.001	-0.029
7	0.000	0.000	0.000	-0.039	-0.041	0.000	0.000	0.000	0.000	-0.046	-0.044	0.008
8	0.000	-0.022	0.000	-0.044	-0.046	-0.048	0.000	0.014	0.000	0.013	0.000	0.040
9	0.000	-0.038	0.006	-0.048	-0.060	-0.064	0.000	0.000	-0.007	0.003	0.006	0.000
10	0.000	-0.032	-0.020	-0.068	-0.073	-0.013	-0.022	0.029	-0.021	0.032	0.003	-0.018
11	0.000	-0.020	-0.028	0.000	0.012	0.024	0.000	0.029	0.000	0.000	-0.015	-0.046
12	0.000	0.000	0.000	-0.012	-0.012	0.000	0.000	0.000	0.029	-0.005	0.004	-0.027
13	0.000	0.000	0.000	-0.012	0.012	-0.024	-0.021	0.007	0.000	-0.050	-0.007	0.008
14	0.000	0.000	0.000	0.012	0.000	0.000	-0.014	0.000	0.000	-0.037	-0.001	-0.039
15	0.000	-0.043	0.000	0.000	-0.072	-0.013	0.000	-0.043	0.000	-0.091	-0.017	-0.009
16	0.000	0.000	-0.015	0.013	0.000	0.039	-0.008	0.000	0.000	0.028	0.023	0.015
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.152	0.082	-0.053
18	0.000	-0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.030	0.056	-0.016
19	-0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.006	0.004
20	-0.056	0.000	-0.049	0.000	0.000	0.000	-0.058	0.000	0.000	0.000	-0.009	-0.021
21	0.000	-0.052	-0.066	0.000	0.013	0.000	0.000	0.000	-0.056	0.036	0.019	-0.008
22	0.000	0.000	-0.071	0.000	-0.013	0.000	0.012	0.000	0.000	0.000	0.056	-0.037
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.091	0.109	0.042
24	0.000	0.000	-0.063	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.031	-0.055
25	0.000	0.000	0.000	0.000	0.000	-0.026	0.012	0.000	0.012	-0.001	-0.015	-0.042
26	0.000	0.000	0.000	0.000	0.027	0.000	0.000	-0.011	0.070	0.061	-0.017	0.019
27	0.000	0.000	0.000	-0.026	0.000	0.027	0.065	0.000	0.020	0.018	-0.008	-0.004
28	0.000	0.000	0.000	0.000	-0.013	0.000	0.000	0.000	0.000	0.014	0.021	0.002
29	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	-0.030	-0.032	-0.012	-0.006
30	0.000	0.000	0.000	-0.079	0.086	0.000	0.031	-0.030	0.021	0.005	-0.011	0.005
31	0.000	0.000	0.000	-0.026	0.000	0.000	-0.020	0.010	0.000	-0.004	0.004	-0.008
32	0.000	0.000	0.000	0.027	0.000	0.000	0.020	0.000	0.000	-0.012	0.018	0.008
33	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	-0.048	0.002
34	0.000	0.000	0.000	-0.066	-0.066	0.056	0.000	0.000	0.008	0.013	-0.045	0.041
35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	-0.002	-0.006	0.004
36	0.000	0.000	0.000	0.000	0.000	-0.051	0.000	0.000	0.021	0.012	-0.024	-0.036
37	0.000	0.000	0.000	-0.039	0.006	-0.020	0.000	0.000	0.000	-0.009	-0.003	-0.008
38	0.000	0.000	0.000	0.000	0.039	0.000	0.000	0.000	0.000	-0.009	0.013	0.008
39	0.000	0.000	0.000	0.000	-0.057	0.000	0.000	0.000	0.000	-0.001	0.005	-0.011
40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015	-0.013	0.006	0.021
41	0.000	0.000	0.000	0.000	0.000	0.000	-0.011	0.019	0.018	-0.007	0.012	-0.012
42	0.000	0.000	0.000	0.000	-0.012	0.012	0.018	0.000	0.036	-0.012	0.009	-0.012
43	0.000	0.000	0.000	-0.030	0.000	0.016	-0.034	0.018	0.000	0.012	-0.039	0.021
44	0.000	-0.081	-0.088	0.000	-0.046	0.000	0.000	0.026	0.005	0.011	-0.013	0.003
45	0.000	0.000	-0.097	0.000	0.000	0.026	0.020	-0.008	0.000	-0.007	-0.007	-0.009
46	0.071	0.100	0.000	-0.009	-0.016	-0.016	0.000	0.000	0.018	0.000	-0.012	0.011
47	0.000	0.000	0.000	0.000	-0.016	0.050	-0.010	0.033	0.000	0.060	-0.018	0.008
48	0.000	0.000	0.000	0.000	0.010	0.106	0.000	0.000	0.000	-0.005	0.023	-0.006
49	-0.074	0.000	0.000	-0.104	0.000	0.000	0.000	0.000	0.000	0.007	0.015	0.005
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.003	0.002	0.029
51	0.000	0.000	0.000	-0.017	-0.024	0.000	0.000	0.000	0.000	0.008	0.000	0.018
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.008	0.008	0.003	-0.001	0.003
53	0.000	0.000	0.000	0.000	-0.003	0.003	0.000	0.000	0.000	-0.003	0.012	0.005
54	0.000	0.140	0.000	0.000	0.000	-0.018	0.000	0.003	0.043	0.032	0.002	-0.038
55	0.000	0.000	0.035	0.000	0.015	0.011	0.000	0.001	0.000	0.037	0.008	-0.023
56	0.000	0.000	0.000	0.033	0.000	0.000	0.014	0.000	0.000	-0.001	0.002	0.008
57	0.000	0.000	0.000	0.000	0.145	0.124	0.000	0.000	0.034	0.001	-0.004	-0.005
58	0.000	0.000	0.000	0.090	0.034	-0.044	0.034	0.040	0.022	0.010	0.009	-0.014
59	0.000	0.000	0.000	0.000	0.012	0.000	0.019	-0.021	0.000	0.009	-0.013	0.051
60	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	-0.001	0.008	0.007
61	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.002	0.002	0.002
62	0.000	0.000	0.000	0.000	-0.002	0.002	0.000	0.000	0.000	0.010	-0.001	-0.010
63	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.009
64	0.000	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.014	-0.004	0.005
65	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.005	0.006
66	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.051	-0.045
67	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.012	-0.003	0.008
68	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.004	-0.005	-0.003
69	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.008	0.000	0.013
70	0.000	0.000	0.000	0.000	-0.011	0.000	0.000	0.003	0.004	0.004	0.003	-0.014

APPENDIX II-INDIVIDUAL COMPANY RETURNS

	EBL			JHL			KA			KCB		
Week	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur
1				0.000	0.006	-0.039	0.021	0.012	-0.007			
2				-0.006	-0.016	-0.127	-0.011	-0.014	-0.100			
3				0.090	0.003	0.043	0.069	-0.010	-0.012			
4				-0.012	0.039	-0.062	0.038	0.039	-0.012			
5				-0.045	-0.097	-0.136	-0.150	-0.021	-0.071			
6				-0.036	-0.009	-0.027	-0.028	-0.036	-0.017	0.000	-0.041	0.009
7				-0.025	-0.007	0.007	-0.016	-0.025	-0.061	-0.073	-0.008	0.004
8				0.006	0.000	0.004	-0.003	0.000	0.095	0.009	0.027	0.000
9				0.043	-0.016	0.000	-0.041	0.027	0.000	-0.010	-0.105	0.000
10				0.018	0.003	-0.050	-0.008	-0.014	-0.037	-0.002	-0.010	-0.029
11				0.000	-0.023	-0.071	0.000	-0.033	-0.134	0.000	-0.028	-0.057
12				-0.005	-0.037	0.005	-0.016	0.016	-0.017	0.047	-0.006	-0.062
13				-0.002	-0.102	0.008	0.019	-0.017	0.019	0.042	-0.028	-0.015
14				-0.061	0.060	-0.054	-0.057	-0.081	-0.012	-0.095	-0.010	-0.044
15				-0.041	-0.043	-0.039	0.018	-0.014	0.004	-0.005	-0.003	-0.013
16				0.034	0.052	0.009	-0.046	-0.048	-0.037	0.032	-0.018	0.018
17				0.004	0.073	-0.004	0.026	0.005	-0.007	0.084	0.068	-0.057
18				0.109	-0.006	0.003	0.084	0.098	0.045	0.027	0.015	-0.017
19				0.013	-0.004	0.039	0.048	0.006	-0.008	0.021	0.026	0.043
20				-0.017	-0.018	0.040	0.000	-0.020	-0.033	0.011	-0.012	-0.023
21			0.054	0.015	-0.003	0.001	0.054	0.080	-0.003	0.030	0.009	-0.107
22	-0.026	0.197	-0.121	-0.024	-0.862	0.018	0.035	4.316	-0.075	0.000	0.244	-0.063
23	0.093	-0.039	0.000	0.099	0.000	-0.089	0.003	0.005	0.011	0.050	-0.016	0.033
24	0.000	0.000	0.098	0.000	0.017	-0.004	0.011	0.069	0.016	0.043	-0.005	0.008
25	0.017	-0.021	-0.039	0.013	0.068	-0.155	-0.044	-0.009	-0.041	0.003	-0.020	-0.042
26	-0.048	0.086	-0.079	0.010	0.007	0.021	0.020	0.037	0.014	0.021	0.006	-0.005
27	0.119	-0.011	0.006	0.013	0.000	0.011	0.004	-0.007	0.003	0.003	-0.008	-0.029
28	-0.002	-0.009	-0.093	-0.008	0.040	0.037	0.019	0.000	-0.035	-0.012	-0.012	-0.027
29	0.000	0.000	0.000	-0.022	-0.030	0.009	0.005	0.004	0.000	0.030	0.029	-0.021
30	0.000	0.021	0.007	-0.027	0.004	0.005	-0.001	-0.003	-0.006	-0.002	-0.015	-0.007
31	-0.016	-0.012	-0.026	0.005	-0.038	-0.010	-0.024	-0.006	-0.064	-0.015	-0.009	-0.012
32	-0.059	-0.005	-0.008	0.048	-0.010	-0.003	-0.017	-0.010	0.066	-0.050	-0.009	0.060
33	-0.008	0.026	-0.018	-0.003	-0.028	0.011	0.066	-0.028	-0.008	0.060	0.005	-0.021
34	0.091	-0.131	0.030	0.031	-0.060	0.031	0.002	-0.051	0.040	-0.011	-0.062	0.027
35	-0.005	-0.008	-0.008	0.032	-0.006	-0.038	-0.017	-0.005	-0.003	-0.019	-0.006	0.008
36	0.155	-0.148	-0.014	0.012	-0.017	0.026	-0.022	-0.084	-0.027	0.013	0.006	-0.024
37	0.014	-0.011	-0.025	-0.046	-0.003	0.018	0.035	-0.002	0.000	0.010	-0.004	-0.036
38	-0.017	0.239	0.000	-0.004	-0.022	-0.023	0.040	-0.016	-0.015	0.002	0.006	-0.024
39	0.000	-0.153	-0.003	-0.008	0.007	-0.004	0.064	-0.014	0.020	0.018	-0.004	-0.022
40	0.006	-0.003	0.003	-0.024	0.016	-0.041	0.049	-0.005	0.018	0.010	0.006	0.006
41	0.006	0.000	-0.017	-0.007	0.048	-0.017	0.003	-0.003	0.003	-0.010	-0.012	0.008
42	-0.017	0.034	-0.019	-0.017	0.077	0.004	0.003	0.049	0.016	0.008	0.034	-0.006
43	0.019	-0.041	0.006	-0.004	0.038	-0.041	-0.015	0.092	0.020	0.006	-0.020	-0.004
44	-0.014	-0.003	-0.009	0.042	0.001	-0.014	0.041	0.009	0.130	-0.002	0.006	0.016
45	-0.020	-0.009	-0.021	0.011	-0.017	0.007	0.024	-0.051	0.021	-0.006	0.000	-0.014
46	0.000	0.018	0.009	0.000	0.021	-0.004	0.000	0.018	0.032	0.000	-0.008	-0.002
47	0.038	-0.003	0.017	0.027	-0.019	0.019	0.067	-0.018	-0.012	0.038	-0.006	0.016
48	0.020	0.017	-0.019	0.039	-0.015	0.001	0.009	0.009	0.008	0.006	0.002	-0.010
49	0.020	0.006	-0.014	0.000	0.026	0.015	0.008	0.016	0.011	0.000	0.008	-0.027
50	0.019	0.014	-0.011	0.012	-0.006	-0.016	0.080	0.047	0.008	0.016	0.016	0.013
51	0.008	0.000	0.211	0.012	0.000	0.103	0.115	0.000	0.221	0.030	0.000	0.090
52	-0.035	0.022	0.012	0.010	0.035	-0.038	0.000	-0.001	0.033	-0.012	-0.002	0.004
53	0.000	-0.014	-0.010	-0.039	0.050	-0.002	0.007	0.012	-0.079	-0.002	0.011	-0.002
54	0.002	-0.002	0.026	0.000	0.002	0.018	0.116	0.083	0.078	0.017	-0.020	-0.002
55	0.014	0.005	-0.029	0.005	0.001	-0.081	0.139	0.065	0.079	0.000	0.002	-0.024
56	0.078	0.008	0.068	0.029	0.038	0.037	0.016	-0.006	-0.012	0.044	0.003	0.000
57	-0.047	0.000	0.004	0.001	-0.009	-0.022	-0.008	0.011	-0.014	0.000	0.006	-0.016
58	0.023	0.004	-0.002	0.004	-0.026	0.033	-0.005	0.003	-0.006	-0.008	-0.064	-0.066
59	-0.006	0.010	0.116	-0.026	0.016	0.021	-0.044	-0.005	0.053	0.039	0.029	0.052
60	0.034	0.059	-0.014	0.022	0.007	-0.043	0.017	0.011	-0.046	-0.048	0.002	0.019
61	0.014	0.012	0.012	-0.013	-0.025	-0.064	-0.008	-0.008	0.033	0.005	0.002	0.002
62	-0.027	-0.002	-0.003	0.010	-0.006	-0.010	-0.022	-0.017	-0.004	-0.034	-0.061	-0.010
63	-0.005	0.006	0.020	-0.010	-0.004	0.021	0.012	-0.015	0.004	-0.017	-0.002	0.018
64	-0.024	0.012	-0.032	-0.033	0.002	-0.025	-0.004	-0.003	-0.012	0.000	-0.015	-0.012
65	-0.012	0.000	0.002	0.018	0.000	0.007	0.005	0.000	0.033	-0.022	0.000	0.018
66	-0.018	0.051	-0.035	0.003	0.050	-0.016	-0.009	0.057	-0.056	0.014	0.050	0.025
67	0.011	0.008	-0.003	0.030	-0.003	0.008	0.028	0.077	0.026	0.037	-0.002	-0.004
68	0.068	0.048	-0.067	0.130	-0.071	0.046	-0.025	0.000	-0.051	0.004	0.000	-0.002
69	-0.023	0.021	0.017	-0.018	-0.010	0.040	0.018	0.000	0.012	-0.019	0.000	0.012
70	0.019	-0.025	-0.009	0.029	0.003	0.013	0.051	0.003	0.003	0.000	0.010	0.030

APPENDIX II-INDIVIDUAL COMPANY RETURNS

	NIC			NVL			SBU			UCL		
Week	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur	Mon	Tue	Thur
1				0.000	0.000	0.000	-0.022	-0.022	-0.091	0.273	0.214	0.176
2				-0.015	0.000	0.000	-0.024	0.000	0.025	-0.120	0.023	-0.044
3				0.000	0.000	0.000	0.000	-0.024	-0.025	-0.093	-0.026	0.000
4				0.000	0.000	-0.016	0.000	0.056	-0.158	0.000	0.000	-0.132
5				-0.016	-0.016	-0.022	-0.094	0.034	0.000	-0.182	-0.222	-0.048
6				0.000	0.000	0.000	-0.034	0.000	0.000	-0.125	0.000	-0.036
7				-0.019	-0.019	0.000	0.071	-0.067	0.000	0.037	-0.036	-0.037
8				0.000	0.000	0.000	0.037	-0.036	0.074	0.000	0.000	-0.038
9				0.000	0.000	0.000	-0.034	0.000	0.000	0.000	0.000	-0.042
10				0.000	-0.021	-0.021	0.036	-0.034	0.036	-0.130	0.100	-0.182
11				0.000	0.000	0.000	-0.034	0.036	0.000	-0.043	0.000	0.000
12				0.000	0.000	0.000	0.034	-0.033	0.000	0.045	-0.043	0.000
13				-0.022	0.000	0.000	0.000	0.000	-0.034	0.000	0.000	-0.136
14				0.000	0.000	-0.022	-0.179	0.174	0.000	-0.158	0.250	0.000
15				0.000	-0.023	0.000	-0.111	0.125	0.000	-0.050	-0.316	0.385
16				0.000	0.000	0.000	0.000	0.037	0.000	0.111	0.000	0.050
17				0.000	0.000	0.000	0.000	0.000	0.000	-0.095	0.000	-0.105
18				-0.024	-0.024	0.000	0.000	0.000	0.000	0.118	0.000	-0.158
19				0.000	0.000	-0.025	0.000	0.000	-0.143	-0.150	0.000	-0.176
20				0.000	0.000	-0.027	0.000	0.000	0.037	0.000	-0.056	0.000
21				0.000	0.000	-0.028	0.000	0.000	0.033	0.000	0.125	-0.111
22				0.000	0.000	0.000	0.032	0.000	0.000	0.000	0.000	0.000
23				0.000	0.000	0.000	-0.031	0.032	-0.063	0.000	0.000	-0.063
24				0.000	-0.029	0.000	0.067	0.000	-0.031	0.067	-0.063	0.067
25				-0.030	0.000	0.000	0.032	-0.031	0.032	0.000	-0.063	0.067
26				-0.031	0.000	0.000	-0.031	0.032	-0.031	-0.125	0.143	0.000
27				-0.032	0.000	0.000	0.000	0.000	-0.032	-0.063	0.000	0.067
28				0.000	0.000	-0.033	0.000	0.000	0.067	-0.125	0.071	0.000
29				-0.034	0.000	0.000	-0.031	0.000	0.065	-0.067	0.000	0.000
30				-0.012	0.000	-0.036	-0.030	0.000	0.031	0.143	-0.125	0.000
31				0.000	-0.012	0.000	-0.030	0.000	0.031	0.000	0.000	0.000
32				0.000	0.000	0.000	-0.030	0.006	0.025	0.000	0.000	0.000
33				-0.038	0.000	0.000	-0.030	0.000	0.000	0.000	0.000	0.000
34				0.000	-0.039	-0.103	0.000	-0.030	0.000	0.000	0.000	0.000
35				-0.096	0.000	-0.050	0.000	0.000	0.000	0.000	0.000	0.000
36				-0.053	0.000	-0.056	0.000	0.000	0.000	0.000	0.000	0.000
37				0.000	0.039	-0.113	0.000	0.000	0.000	0.000	0.000	0.000
38				0.064	0.000	0.000	0.000	0.000	0.000	-0.143	0.083	0.015
39				0.000	-0.060	0.000	0.000	0.000	0.000	-0.015	0.000	-0.077
40				-0.053	0.009	-0.009	0.000	0.000	-0.006	0.017	0.000	-0.213
41				0.000	0.000	0.000	-0.019	0.000	0.026	0.250	0.000	0.000
42				0.000	0.000	0.013	0.026	-0.013	0.000	0.000	0.000	0.000
43				0.000	-0.002	0.000	0.000	0.000	-0.032	0.000	0.000	0.000
44				-0.011	0.000	0.000	0.013	0.019	-0.006	0.000	-0.167	0.200
45				0.000	-0.007	0.018	-0.013	0.000	0.000	0.000	0.000	0.000
46				0.000	-0.007	0.000	0.000	0.032	0.000	0.000	0.000	-0.050
47				0.007	0.000	0.000	0.000	0.000	-0.006	0.053	-0.100	0.000
48				0.000	0.000	0.000	0.000	0.000	0.063	0.250	0.000	0.000
49				0.000	0.000	-0.011	-0.059	0.000	0.000	0.000	0.000	0.000
50				0.000	0.000	0.011	0.031	-0.012	-0.018	0.000	0.000	0.000
51				0.000	0.000	0.000	0.031	0.000	0.000	0.000	0.000	0.020
52				0.000	0.000	0.011	0.030	-0.029	0.000	0.000	0.000	0.000
53				0.000	0.000	0.000	0.006	-0.006	0.000	0.000	0.000	-0.360
54				0.000	0.000	0.011	0.000	0.000	0.006	0.000	0.071	0.000
55				0.000	0.000	0.000	0.011	0.124	-0.070	0.000	0.000	0.083
56	0.000	0.000	0.000	0.309	0.000	0.056	0.000	0.000	0.057	-0.013	-0.013	-0.080
57	0.000	0.000	0.000	0.300	0.075	0.085	0.000	0.000	0.000	0.014	-0.057	-0.015
58	0.000	0.000	0.000	0.380	-0.011	0.000	0.000	0.000	0.000	0.000	-0.031	0.032
59	0.000	0.000	0.000	0.042	-0.012	0.012	0.000	0.000	-0.054	-0.077	-0.117	-0.038
60	0.000	0.000	0.000	0.000	-0.027	0.000	0.024	-0.070	0.005	-0.020	0.020	0.000
61	-0.048	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.065	0.000	0.000	-0.055
62	0.000	0.050	0.032	0.000	-0.007	0.000	0.000	-0.038	0.000	0.000	0.058	0.000
63	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.033	-0.027	0.091	0.000	0.000
64	0.000	0.000	0.000	0.000	0.034	0.000	0.028	-0.023	0.000	0.000	0.000	0.000
65	0.000	0.000	0.077	0.012	0.000	-0.005	0.000	0.023	0.005	0.000	0.000	0.000
66	0.000	0.000	0.000	0.007	-0.007	0.000	0.014	0.000	0.000	0.000	0.000	0.000
67	0.000	0.000	0.000	0.000	0.000	0.007	-0.004	0.004	0.000	0.000	0.000	-0.083
68	0.000	0.000	0.000	0.026	0.006	0.000	0.000	0.004	0.004	0.091	0.000	0.000
69	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031	0.026	0.000	0.000	0.000
70	0.000	0.000	0.000	0.000	0.000	0.001	-0.013	0.000	0.000	0.000	0.000	0.000

APPENDIX III -F TEST COMPUTATION

	Stock	RETURNS	SQR RETURNS	VARIANCE		Stock	RETURNS	SQR RETURNS	VARIANCE		Stock	RETURNS	SQR RETURNS	VARIANCE
Mon	9/1/2008	0.031710479	0.001005554	0.000998842	Tue	9/2/2008	0.022768003	0.000518382	0.000331928	Thur	9/4/2008	0.000404649	1.63741E-07	2.54097E-05
Mon	9/15/2008	-0.007252077	5.25926E-05	5.41415E-05	Tue	9/16/2008	0.008055488	6.48909E-05	1.22948E-05	Thur	9/18/2008	-0.031429969	0.000987843	0.000717908
Mon	9/22/2008	0.008951549	8.01302E-05	7.82436E-05	Tue	9/23/2008	0.009676881	9.3642E-05	2.62942E-05	Thur	9/25/2008	0.004155205	1.72657E-05	7.72881E-05
Mon	10/20/2008	0.002892675	8.36757E-06	7.7655E-06	Tue	10/21/2008	0.015626354	0.000244183	0.000122706	Thur	10/23/2008	-0.048337028	0.002336468	0.001909766
Mon	10/27/2008	-0.075077727	0.005636665	0.005652594	Tue	10/28/2008	-0.0470235	0.00221121	0.002659733	Thur	10/30/2008	-0.046085735	0.002123895	0.001718067
Mon	11/24/2008	-0.025299855	0.000640083	0.000645458	Tue	11/25/2008	-0.012344893	0.000152396	0.000285407	Thur	11/27/2008	-0.016409931	0.000269286	0.000138622
Mon	12/1/2008	-0.010993592	0.000120859	0.000123201	Tue	12/2/2008	-0.024601912	0.000605254	0.000849781	Thur	12/4/2008	-0.007978824	6.36616E-05	1.11734E-05
Mon	12/15/2008	0.001718905	2.95463E-06	2.60143E-06	Tue	12/16/2008	-0.006325597	4.00132E-05	0.000118259	Thur	12/18/2008	0.012630951	0.000159541	0.000298153
Mon	1/12/2009	-0.008713579	7.59265E-05	7.77852E-05	Tue	1/13/2009	-0.018685031	0.00034913	0.000539825	Thur	1/15/2009	-0.01061458	0.000112669	3.57415E-05
Mon	1/19/2009	-0.020898966	0.000436767	0.000441209	Tue	1/20/2009	-0.004826746	2.32975E-05	8.79064E-05	Thur	1/22/2009	-0.035526086	0.001262103	0.000954188
Mon	2/2/2009	0.007796102	6.07792E-05	6.24434E-05	Tue	2/3/2009	0.004701018	1.76486E-05	7.65645E-05	Thur	2/5/2009	-0.031193577	0.000973039	0.000705296
Mon	2/9/2009	0.008935966	7.98515E-05	7.79681E-05	Tue	2/10/2009	-0.011167766	0.000124719	0.00024702	Thur	2/12/2009	-0.007300642	5.32994E-05	7.09947E-06
Mon	2/16/2009	-0.004492879	2.0186E-05	2.11498E-05	Tue	2/17/2009	-0.01487966	0.000221404	0.000377477	Thur	2/19/2009	-0.017407758	0.00030303	0.000163114
Mon	2/23/2009	-0.058894866	0.003468605	0.003481103	Tue	2/24/2009	0.039277853	0.00154275	0.001206086	Thur	2/26/2009	-0.017160863	0.000294495	0.000156868
Mon	3/2/2009	-0.031682491	0.00100378	0.001010509	Tue	3/3/2009	-0.044840806	0.002010698	0.002439363	Thur	3/5/2009	0.031520659	0.000993552	0.001307315
Mon	3/9/2009	0.016471341	0.000271322	0.00026784	Tue	3/10/2009	-0.017858124	0.000318913	0.000507084	Thur	3/12/2009	0.00789538	6.2337E-05	0.000157039
Mon	3/16/2009	0.017090888	0.000292098	0.000288486	Tue	3/17/2009	0.02279408	0.00051957	0.000332879	Thur	3/19/2009	-0.022692996	0.000514972	0.000326049
Mon	4/6/2009	0.02831228	0.000801585	0.000795594	Tue	4/7/2009	0.009157504	8.38599E-05	2.12374E-05	Thur	4/9/2009	-0.014210978	0.000201952	9.16772E-05
Mon	4/27/2009	-0.010761354	0.000115807	0.0001181	Tue	4/28/2009	0.003338613	1.11463E-05	1.46527E-06	Thur	4/30/2009	-0.026473244	0.000700833	0.000476858
Mon	5/25/2009	-0.012059602	0.000145434	0.000148002	Tue	5/26/2009	-0.011538677	0.000133141	0.000258817	Thur	5/28/2009	-0.007588933	5.75919E-05	8.71887E-06
Mon	6/15/2009	0.013403374	0.00017965	0.00017682	Tue	6/16/2009	0.019130322	0.000365969	0.000212612	Thur	6/18/2009	-0.026458556	0.000700055	0.000476217
Mon	6/22/2009	0.002686043	7.21483E-06	6.65657E-06	Tue	6/23/2009	0.357947354	0.128126308	0.124890327	Thur	6/25/2009	-0.031615968	0.000999569	0.00072791
Mon	6/29/2009	0.011055664	0.000122228	0.000119895	Tue	6/30/2009	0.008213079	6.74547E-05	1.34248E-05	Thur	7/2/2009	-0.011633427	0.000135336	4.89616E-05
Mon	7/6/2009	0.018265391	0.000333625	0.000329763	Tue	7/7/2009	0.001919417	3.68416E-06	6.91523E-06	Thur	7/9/2009	0.003057848	9.35043E-06	5.91977E-05
Mon	7/13/2009	0.000235173	5.53065E-08	1.6683E-08	Tue	7/14/2009	-0.008241813	6.79275E-05	0.000163607	Thur	7/16/2009	-0.021401467	0.000458023	0.000281076
Mon	7/20/2009	-0.011175516	0.000124892	0.000127273	Tue	7/21/2009	0.028179418	0.00079408	0.000558392	Thur	7/23/2009	0.00082826	6.86014E-07	2.98599E-05
Mon	7/27/2009	0.009258901	8.57273E-05	8.37754E-05	Tue	7/28/2009	-0.002996376	8.97827E-06	5.69342E-05	Thur	7/30/2009	0.006361954	4.04745E-05	0.000120958
Mon	8/3/2009	-0.013763677	0.000189439	0.000192368	Tue	8/4/2009	0.001722263	2.96619E-06	7.991E-06	Thur	8/6/2009	-0.007425361	5.5136E-05	7.77965E-06
Mon	8/10/2009	-0.012634437	0.000159629	0.000162319	Tue	8/11/2009	-0.000743984	5.53513E-07	2.80167E-05	Thur	8/13/2009	0.001421757	2.02142E-06	3.66985E-05
Mon	8/17/2009	0.002528619	6.39392E-06	5.86903E-06	Tue	8/18/2009	-0.00657178	4.31883E-05	0.000123674	Thur	8/20/2009	0.00182935	3.34652E-06	4.18028E-05
Mon	8/24/2009	-0.011970202	0.000143286	0.000145835	Tue	8/25/2009	-0.005715311	3.26648E-05	0.000105358	Thur	8/27/2009	-0.008005647	6.40904E-05	1.13534E-05

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Mon	8/31/2009	0.015259461	0.000232851	0.000236098	Tue	9/1/2009	-0.000913133	8.33812E-07	2.9836E-05	Thur	9/3/2009	0.013465982	0.000181333	0.000327688
Mon	9/7/2009	0.005043459	2.54365E-05	2.43784E-05	Tue	9/8/2009	-0.006686462	4.47088E-05	0.000126238	Thur	9/10/2009	-0.003177219	1.00947E-05	2.12851E-06
Mon	9/14/2009	0.005484131	3.00757E-05	2.89242E-05	Tue	9/15/2009	-0.043921543	0.001929102	0.002349403	Thur	9/17/2009	0.011862229	0.000140712	0.000272197
Mon	9/21/2009	-0.009807843	9.61938E-05	9.82845E-05	Tue	9/22/2009	-0.002740109	7.5082E-06	5.31325E-05	Thur	9/24/2009	-0.005293971	2.80261E-05	4.32716E-07
Mon	9/28/2009	0.010621043	0.000112807	0.000110566	Tue	9/29/2009	-0.024308707	0.000590913	0.000832773	Thur	10/1/2009	-0.014582655	0.000212654	9.89328E-05
Mon	10/5/2009	-0.003250805	1.05677E-05	1.12682E-05	Tue	10/6/2009	0.002028709	4.11566E-06	6.35236E-06	Thur	10/8/2009	0.016777157	0.000281473	0.000147404
Mon	10/12/2009	-0.006200428	3.84453E-05	3.97712E-05	Tue	10/13/2009	0.031115475	0.000968173	0.000705772	Thur	10/15/2009	-0.003473806	1.20673E-05	1.35106E-06
Mon	10/19/2009	0.005282046	2.79E-05	2.67913E-05	Tue	10/20/2009	-0.025108754	0.00063045	0.000879588	Thur	10/22/2009	0.008757437	7.66927E-05	1.69849E-05
Mon	10/26/2009	-0.000832143	6.92463E-07	8.80133E-07	Tue	10/27/2009	0.00404416	1.63552E-05	2.54963E-07	Thur	10/29/2009	-0.018708698	0.000350015	0.000198036
Mon	11/2/2009	0.018689736	0.000349306	0.000345355	Tue	11/3/2009	0.005712978	3.26381E-05	1.35462E-06	Thur	11/5/2009	0.000903739	8.16745E-07	3.06905E-05
Mon	11/9/2009	0.000903739	8.16745E-07	6.36371E-07	Tue	11/10/2009	0.016261585	0.000264439	0.000137182	Thur	11/12/2009	0.004000994	1.6008E-05	7.46004E-05
Mon	11/16/2009	-0.004228949	1.7884E-05	1.87919E-05	Tue	11/17/2009	0.004335581	1.87973E-05	4.55898E-08	Thur	11/19/2009	-0.001244045	1.54765E-06	1.15064E-05
Mon	11/23/2009	0.007273233	5.28999E-05	5.13691E-05	Tue	11/24/2009	-0.022554832	0.00050872	0.000734623	Thur	11/26/2009	0.021519752	0.0004631	0.000684132
Mon	11/30/2009	0.000821974	6.75641E-07	5.12604E-07	Tue	12/1/2009	-0.009030204	8.15446E-05	0.000184397	Thur	12/3/2009	-0.006258238	3.91655E-05	2.63114E-06
Mon	12/7/2009	0.005635874	3.17631E-05	3.05794E-05	Tue	12/8/2009	-0.004786774	2.29132E-05	8.71585E-05	Thur	12/10/2009	-0.000177931	3.16594E-08	1.98758E-05
Mon	12/14/2009	0.025400618	0.000645191	0.000639817	Tue	12/15/2009	-0.013379549	0.000179012	0.000321436	Thur	12/17/2009	0.00831862	6.91994E-05	0.000167826
Mon	12/28/2009	0.02898915	0.000840371	0.000834236	Tue	12/29/2009	0.004163034	1.73309E-05	1.49046E-07	Thur	12/31/2009	0.01297493	0.000168349	0.00031015
Mon	1/4/2010	-0.018451702	0.000340465	0.000344389	Tue	1/5/2010	0.006352142	4.03497E-05	3.25097E-06	Thur	1/7/2010	-0.00193604	3.74825E-06	7.29065E-06
Mon	1/11/2010	0.014147058	0.000200139	0.000197151	Tue	1/12/2010	0.005502906	3.0282E-05	9.09749E-07	Thur	1/14/2010	0.00143716	2.06543E-06	3.68852E-05
Mon	1/18/2010	0.016974271	0.000288126	0.000284538	Tue	1/19/2010	-0.002157165	4.65336E-06	4.4974E-05	Thur	1/21/2010	0.060193991	0.003623317	0.004202948
Mon	2/1/2010	-0.000399665	1.59732E-07	2.55708E-07	Tue	2/2/2010	0.001482748	2.19854E-06	9.4025E-06	Thur	2/4/2010	0.002990027	8.94026E-06	5.81587E-05
Mon	2/8/2010	-0.002749675	7.56071E-06	8.15494E-06	Tue	2/9/2010	0.005480333	3.00341E-05	8.67199E-07	Thur	2/11/2010	-0.040309859	0.001624885	0.001272613
Mon	3/15/2010	0.015184857	0.00023058	0.000227372	Tue	3/16/2010	0.024787574	0.000614424	0.000409596	Thur	3/18/2010	0.011256514	0.000126709	0.000252577
Mon	3/22/2010	-0.006556851	4.29923E-05	4.43937E-05	Tue	3/23/2010	0.019999598	0.000399984	0.000238718	Thur	3/25/2010	-0.003713759	1.3792E-05	8.50822E-07
Mon	4/26/2010	0.0174678	0.000305124	0.000301432	Tue	4/27/2010	0.002657037	7.05985E-06	3.57989E-06	Thur	4/29/2010	0.011141286	0.000124128	0.000248928
Mon	5/3/2010	-0.003151775	9.93368E-06	1.06132E-05	Tue	5/4/2010	0.014024477	0.000196686	8.97828E-05	Thur	5/6/2010	0.014498241	0.000210199	0.000366125
Mon	5/10/2010	0.019125979	0.000365803	0.000361759	Tue	5/11/2010	-0.003427233	1.17459E-05	6.36219E-05	Thur	5/13/2010	-0.003818131	1.45781E-05	6.6917E-07
Mon	5/17/2010	-0.003689325	1.36111E-05	1.44046E-05	Tue	5/18/2010	-0.008517432	7.25466E-05	0.000170734	Thur	5/20/2010	0.017843278	0.000318383	0.000505325
Mon	5/24/2010	0.002279186	5.19469E-06	4.72269E-06	Tue	5/25/2010	0.001793514	3.21669E-06	7.59325E-06	Thur	5/27/2010	-0.006005552	3.60667E-05	1.87524E-06
Mon	6/14/2010	-0.004233227	1.79202E-05	1.8829E-05	Tue	6/15/2010	-0.001481449	2.19469E-06	3.63675E-05	Thur	6/17/2010	-0.004188384	1.75426E-05	2.00502E-07
Mon	6/21/2010	-0.0052969	2.80572E-05	2.91914E-05	Tue	6/22/2010	-0.002083795	4.3422E-06	4.39953E-05	Thur	6/24/2010	-0.000134343	1.8048E-08	2.02664E-05
Mon	6/28/2010	0.009332518	8.70959E-05	8.51284E-05	Tue	6/29/2010	0.001533714	2.35228E-06	9.09254E-06	Thur	7/1/2010	0.003664076	1.34255E-05	6.88939E-05

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Mon	7/5/2010	0.00387359	1.50047E-05	1.58372E-05	Tue	7/6/2010	0.002871383	8.24484E-06	2.81473E-06	Thur	7/8/2010	0.006187854	3.82895E-05	2.40778E-06
Mon	7/12/2010	-3.28669E-05	1.08023E-09	1.9287E-08	Tue	7/13/2010	0.002388796	5.70635E-06	4.66691E-06	Thur	7/15/2010	0.01189395	0.000141466	0.000279244
Mon	7/26/2010	0.001061736	1.12728E-06	9.13411E-07	Tue	7/27/2010	0.021065332	0.000443748	0.000272786	Thur	7/29/2010	-0.014781561	0.000217904	0.000102524
Mon	8/2/2010	0.010489108	0.000110034	0.000107821	Tue	8/3/2010	0.006716773	4.5115E-05	4.69882E-06	Thur	8/5/2010	-0.003425365	1.17331E-05	1.46602E-06
Mon	8/9/2010	0.024830979	0.000616578	0.000611324	Tue	8/10/2010	-0.002193983	4.81356E-06	4.54691E-05	Thur	8/12/2010	-0.005076882	2.57747E-05	1.94236E-07
Mon	8/16/2010	0.007171635	5.14323E-05	5.29641E-05	Tue	8/17/2010	0.003444749	1.18663E-05	1.21959E-06	Thur	8/19/2010	0.009996684	9.99337E-05	0.00021412
Mon	8/23/2010	0.007517662	5.65152E-05	5.49326E-05	Tue	8/24/2010	-0.001278228	1.63387E-06	3.39577E-05	Thur	8/26/2010	0.002361837	5.57827E-06	4.89719E-05
NUMBER OF VARIABLES		70		0.020978033			70		0.144612175			70		0.02118127
SUM		0.007420742	0.020978819				0.318436879	0.146060775				-0.324531138	0.022685848	
MEAN		0.00010601					0.00454910					-0.00463616		
VARIANCE		0.000304029					0.002095829					0.000306975		
MEAN OF MEAN		6.31659E-06												
ANOVA														
	Sum of Squares	Degrees of Freedc	Mean Squares	Computed F	F									
SSE	0.186771469	207	0.000902278	1.636949223	3									
SSC	0.002953965	2	0.001476983											
SST	0.189725435	209	209											
MODEL S	0.015569685													
SEE	0.052798048													