"SHARE PRICE REACTION TO STOCK MARKET SEGMENTATION AT NAIROBI STOCK EXCHANGE"

BY

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A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS OF BUSINESS ADMINISTRATION (MBA) DEGREE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

AUGUST, 2006

DECLARATION

THIS MANAGEMENT RESEARCH PROJECT IS MY ORIGINAL WORK, AND HAS NOT BEEN PRESENTED FOR THE AWARD OF A DEGREE IN ANY OTHER UNIVERSITY.

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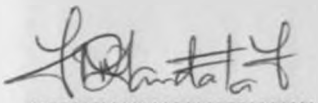

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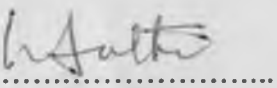

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DEDICATION

To my late Dad and Mum Mr. David Mandala and Mrs. Beliah Mandala, for laying the foundation for my academic advancement and outstanding achievements.

ACKNOWLEDGEMENTS

First of all, I would like to express my deepest gratitude to my supervisor, Mr. Luther Otieno. His guidance, support, encouragement and constant visits were very important to me. I came to know Mr. Otieno when he taught me Investments and Portfolio Management where I liked his teaching styles. I was very lucky to meet Luther and have him as a mentor and friend.

I would also wish to express special thanks to my sisters, brothers for their moral and social support for the entire period of my studies.

I would especially thank all friends, particularly, Clyde Mutsotso, Sam Okello, Cate Nyambura and Jennifer Mburu for being there with me during all the tiring and stressing period of the MBA class work.

Above all, Glory be to Almighty God, for the grace that has made me be what I am today.

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LIST OF ABBREVIATIONS

MIMS:	Main Investment Market Segment
AIMS:	Alternative Investment Market Segment
FISMS:	Fixed Investment Securities Market Segment
CAPM:	Capital Asset Pricing Model
NSE:	Nairobi Stock Exchange
OTC:	Over the Counter Market
NYSE:	New York Stock Exchange
NASDAQ:	National Association of Securities Dealers Automated Quotation System

DEFINITION OF TERMS

Liquidity:	The ability to trade large quantities quickly, at low cost, and without moving the price.
Capital Market:	A market where financial assets in form of shares, bonds and debentures are traded.
Equity:	This is the financial claim of owners of the firm. It reflects the amount of funds invested by the owners of the firm.
Returns:	The gains that accrue to investors from their investments inform of dividends, interest and capital gains.

ABSTRACT

In February 2001, NSE was segmented into three market segments MIMS, AIMS and FISMS. Segmentation of security markets has its adverse effects. Shareholders of firms moved from the main market to subsidiary market (AIMS) might find it difficult or incur additional costs in liquidating off their shares; and potential investors could lose interest in the firms thus making it difficult raising funds for worthwhile projects and this ultimately raises the cost of capital. The degree of investor recognition could be affected and thus ultimately affect the share returns which again has a bearing on the cost of capital. However segmentation of the market as a form of financial innovation could improve efficiency leading to a reduction in the cost of capital without a commensurate increase in systematic risk.

This paper thus seeks to determine the extent to which market segmentation affected the share prices of the listed firms, liquidity and investor recognition. To document the return patterns surrounding the segmentation announcement as well as obtain residuals for hypothesis testing, the event study methodology pioneered by Fama et al. (1969) will be used to measure the stock price effects of NSE segmentation. An empirical study will be conducted using NSE listed firms as the population.

The findings of the study is that share prices and liquidity were adversely affected by segmentation and thus it was a punishment to firms that were listed in AIMS without a commensurate reduction in cost of capital or financial innovation benefits.

CHAPTER ONE
INTRODUCTION

1.1. Background to the Study.

The effect on share value of listing on stock exchanges by unlisted companies has been the focus of empirical investigations by scholars and practitioners for at least 50 years; Merjos (1962,1963), Goulet (1974), Ying et al. (1977) and Sanger and McConnell (1986). The consensus assumption is that listing is associated with significant increase in share price. "Streetlore" has historically attributed this increase in value to the increased investor recognition that is believed to accompany listing on a major segment of the exchange.

The capital market industry passed significant milestones on Monday, the 8th of May 2000 when the capital markets Authority (CMA) launched the reform strategy for the fundamental re-organization of the Nairobi Stock Exchange (NSE, 2005). The reform was aimed at responding to the changing needs of the market and the economy, as well as further measures towards deepening of the capital markets in Kenya.

Financial innovation is often blamed for what is perceived as an increase in systemic risk-the Asian and Latin American crises being the latest cases in point. Yet financial innovation in the form of different types of derivative products of financial engineering technologies generally provide low cost and highly efficient methods of mitigating rather than exacerbating risk by 'completing' emerging capital markets (Jacque, 2004). Jacque (2004) concludes that financial innovation nurture the

'emergence' process of capital markets in developing countries by bringing about a lower national cost of capital that in turn enhances the wealth of nations.

Financial innovation, which refers to any new development in a national financial markets system such as the NSE segmentation, enhances the allocational efficiency and improves the operational efficiency of the financial system by reducing the costs and/or risk of transactions in the primary and secondary markets in which financial assets are traded (Jacque, 2004). Such financial innovations and their globally reaching migration from mature to emerging markets are generally construed as beneficial to host financial sectors because they bring about a lower national cost of capital; presumably by allowing the transfer of risk from firms less able to bear risk to those which are better equipped to bear it, financial intermediation is improved and national welfare is enhanced. In the best of Finance theory tradition, however, one cannot talk about a lower cost of capital or a higher yield without raising the question of risk. Jacque, (2004) thus concludes that financial innovation is truly welfare-enhancing if it brings about a reduction in the cost of capital without a commensurate increase in systemic risk.

If one can visualize emerging national capital markets positioned along a continuum ranging from recently 'hatched' or embryonic to truly mature markets one can hypothesize that the race along this continuum is indeed beneficial as ascending countries avail themselves of a lower national cost of capital; arguably this process is welfare-enhancing as it improves living standards and make national firms more

competitive in the global marketplace. As markets graduate to higher levels of 'emergedness' they avail themselves of a progressively lower cost of capital, generating higher standards of living due to a lower cost of consumer finance, and more competitive participation in the global economy as national firms gain access to a lower cost of capital (Jacque, 2004). This enables firms to move to invest in marginal projects that would have not been accepted at relatively higher level of cost of capital. Jacque (2004) concludes that a lower cost of capital translates into a higher level of economic welfare-sometimes known as 'the Wealth of Nations'.

The reforms are necessary, therefore, to position domestic "capital market appropriate to the needs of the investors, issuers of securities and the economy," Paul Melly, the Chief executive Officer of CMA, said during the launch of the reform strategy of NSE.

International asset pricing models predict that the segmentation of capital markets leads to a reduction of the cost of capital as risk is diversified. Empirical studies using market level analysis by Bekaert and Harvey (2000), Henry (2000), Kim and Singal (2000), have examined emerging stock market segmentation and its impact on the cost of capital and support these predictions. However, there could be limits to diversification benefits or gains from segmentation so that from a general policy perspective, it is also important to examine the microeconomic dimension. That is, whether these benefits only accrue to the few large and well-known firms preferred by most investors or they trickle down to all firms, large or small, and to all sectors of

the economy. Market segmentation would lead to investors perceiving some firms differently and thus this is likely to affect the share prices.

An aspect of the reform strategy required that NSE be divided into three independent market segments having equal market status, ranking and recognition as below:

Main Investment market segment (MIMS)

This is the major segment of the market comprising of 39 quoted firms. The minimum eligibility conditions and listing requirements for this segment include but not limited to the fact that the company must have a minimum authorized, issued and fully paid up share capital of Kshs 50 million and net assets of Kshs 100 million before the public offering of shares (NSE, 2005). It is important to further note that the firms in this segment are further segmented according to the nature of the industry into Agricultural, Commercial and Services, Finance and Investment, and lastly Industrial and Allied.

Alternative Investment Market Segment (AIMS)

This is a smaller segment compared to MIMS and comprises of 9 listed firms. The minimum eligibility conditions and listing requirements for this segment include but not limited to the fact that the company must have a minimum authorized, issued and fully paid up share capital of Kshs 10 million and net assets of Kshs 20 million before the public offering of shares (NSE, 2005).

Fixed Income Securities Market Segment (FISMS)

This is a debt capital market segment whereby Companies intending to list their commercial papers or corporate bonds in the fixed income securities must satisfy the eligibility requirements similar to those of MIMS. At NSE this segment is still underdeveloped, currently with only the 4% and 7% Kenya Power & Lighting Preference shares.

Each market segment will have its own fees and commission structure. However as an incentive to listing in the AIMS the authority will charge a lower rate of approval fees and in the same spirit, the fees charged by NSE was appropriately reduced (NSE, 2005).

The reforms were necessary in order to respond to changing needs and provide access to the capital market to small and medium sized companies with high growth potential as well as address the special needs of the economy and sophisticated institutional investors. This therefore was futuristic and overlooked what effect this would have on already listed firms.

The changes were also aimed at facilitating liquidity to issued securities of companies that may already have a large shareholder base through the process of 'introductions'. 'Introductions' is a process where existing shares are listed for the purpose of market liquidity and not for the purpose of raising capital.

However, the fact that firms were listed in different market segments could be interpreted differently by different investors. For example, having a firm listed in AIMS could signal low rating. If that assumption holds then the cost of capital of firms listed in AIMS could go up, forcing such firms to raise capital expensively. In the literature such firms face under investment problem. Those holding shares of firms listed in AIMS could also find it difficult disposing their shares thus being forced to incur liquidity costs.

The asset pricing theory can be used to explain why different investors pay different prices for exogenously determined quantity of shares. Since a stock's price equals the present value of expected future dividends discounted at investors' required rates of return, different shares with the same expected future cash flows should have the same prices unless different investors have different required rates of returns due to different valuation of risks (Dongwei, 2000). AIMS investors are primarily small investors who are likely to have different risk exposure or attitude towards risk in financial markets. It could also be argued that segmentation has had an impact on investor recognition. Until recently, the investor recognition explanation has lacked a rigorous analytical foundation.

Merton (1987) fills this void with a model of capital market equilibrium with incomplete information. To develop his model, Merton adopts most of the assumptions of the original Sharpe-Litner-Mossin Capital Asset Pricing Model (CAPM) but relaxes the assumption of equal information across investors. He further

assumes that investors invest in only those securities of which they are aware. With this modification to the original CAPM framework, Merton derives a model in which expected returns increase with systematic risk, firm-specific risk, and relative market value and decrease with the relative size of the firm's investor base-characterized by Merton as "the degree of investor recognition."

According to Merton's model, all else equal, an increase in the size of a firm's investor base will lower investors' expected return and increase the market value of the firm's shares. This therefore impacts on the firm's cost of capital. Managers will therefore have an incentive to undertake activities that increase the firm's investor base. One of the ways in which managers can expand the firm's investor base is to have the firm's shares listed on a major segment of the NSE.

This study thus sought to determine the degree to which investor recognition can explain stock price reactions to announcements of listing either on the main or alternative investment market segments. The researcher was motivated to study this phenomenon because important inferences pertaining to the issue of capital market segmentation and integration can be drawn from the reaction of stock prices to Alternative Investments Market Segment listings. Segmentation of markets due to investment barriers (e.g., regulatory barriers, taxes, information constraints) create an incentive for firms to adopt financial policies to reduce their negative effects (Foerster and Karolyi, 1996)

Merton's model as one of the foundations of this study seeks to determine the degree to which investor recognition can explain stock price reactions to announcements of new listings with a special consideration of the Nairobi Stock Exchange.

While investor recognition may represent one source of value from exchange listing, other potential sources have been suggested. The most widely accepted explanation for the increase in stock price that accompanies listing is superior liquidity. Sanger and McConnell (1986) suggest that differences in the costs of liquidity services provided by different market segments could result in dissimilar structure and means of transacting in the markets. Superior liquidity is thus a natural consequence of the increased demand for the more liquid security.

Because investor recognition and liquidity are likely to be related, and because exchange listing is presumed to affect both, an appropriate test of the investor recognition hypothesis (i.e., Merton's Model) using evidence from exchange listings requires that we control for the effects of the changes in liquidity as well. A theoretical framework for this control is provided by Amihud and Mendelson (1986) in their analysis of asset pricing and the bid-ask spread. Their model of capital market equilibrium predicts that gross expected returns are an increasing and concave function of liquidity as measured by the relative bid-ask spread. According to their model if bid ask spreads are lower following listing, the lower expected returns required by investors should give rise to an increase in the market value of the firm's shares.

Market segmentation is an event that occurred at NSE whose effects on share returns, liquidity and investor recognition has not been subjected to any empirical study despite of the far reaching consequences it is likely to have on the diverse stakeholder groups.

1.2. Statement of the Problem

An enquiry at the NSE reveals that no study was undertaken to determine the effect segmenting the market would have on the already listed companies share prices, liquidity and performance, and on the shareholders of the said firms. Segmenting was motivated by the fact that the stringent listing requirements could not be met by some companies and thus the need to reduce them which would lead to market development through increased listings (NSE, 2005)

However, segmentation of security markets has its adverse effects. Shareholders of firms moved from the main market to subsidiary market (AIMS) might find it difficult or incur additional costs in liquidating off their shares; and potential investors could lose interest in the firms thus making it difficult raising funds for worthwhile projects and this ultimately raises the cost of capital. Liquidity of the market could also be adversely affected by segmentation.

Investors are concerned about liquidity risk. It affects their ability to trade the quantity of shares they want to buy or sell within their desired time-framework (Vassalou et. al., 2005). Most importantly, investors fear that in the event of a financial crisis, they may not be able to exit the market fast enough to contain their losses. These considerations may lead them to shy away from illiquid securities, or require a liquidity-related premium to hold them.

Liquidity is risky and has a commonality: it varies over time both for individual stocks and for the market as a whole (Chordia et al., 2000; Hasbrouck and Seppi, 2000; and Huberman and Halka, 1999). Liquidity is often noted in the press, for instance: "the possibility that liquidity might disappear from a market, and so not be available when it is needed, is a big source of risk to the investor." (The Economist September 23, 1999). It is was with this in mind that the study sort to determine what effects NSE segmentation had on liquidity and the share prices of the affected firms.

Evidence produced by Foerster and Karolyi (1996) found that important inferences pertaining to the issue of capital market integration and segmentation can be drawn from the reaction of stock prices. Segmentation of markets due to investment barriers (e.g., regulatory barriers, taxes, information constraints) creates an incentive for firms to adopt financial policies to reduce their negative effects. Theory suggests that stock prices for firms that dually-list from segmented markets will be expected to rise and their subsequent expected returns should fall as an additional built-in premium compensating for these barriers dissipates (Stapleton and Subrahmanyam, 1977; Errunza and Losq, 1985; Alexander et al., 1987).

If one can visualize emerging national capital markets positioned along a continuum ranging from recently 'hatched' or embryonic to truly mature markets one can hypothesize that the race along this continuum is indeed beneficial as ascending countries avail themselves of a lower national cost of capital; arguably this process is welfare-enhancing as it improves living standards and make national firms more

competitive in the global marketplace. As markets graduate to higher levels of 'emergedness' they avail themselves of a progressively lower cost of capital, generating higher standards of living due to a lower cost of consumer finance, and more competitive participation in the global economy as national firms gain access to a lower cost of capital (Jacque, 2004). Jacque (2004) concludes that a lower cost of capital translates into a higher level of economic welfare-sometimes known as 'the Wealth of Nations.' The quintessential question is thus to identify the drivers of this process. I would suggest that there is need to determine whether segmentation is critical to this process. Was the segmentation planned and was it necessary? The old adage is appropriate in this case, according to Armstrong (2001) "proper planning prevents poor (incident response) performance." There is much at stake in terms of capital wealth and thus the need to safeguard it.

The basis of this research project therefore hinged on these apparent gaps, with a view to first understanding the effect market segmentation had on share prices. It investigated the effect on investor recognition and liquidity. Further, it investigated the effect on future listings on the NSE.

1.3. Objectives of the Study

This study examined the effects of market segmentation at NSE and determined whether this was necessary or not. It was an attempt to determine whether segmentation was harmful to any of the firms listed at NSE. Specifically the study aimed at determining the following;

1) To determine the extent to which market segmentation affects the share prices of the listed firms.
2) To determine whether liquidity and investor recognition changed as a result of segmentation.

1.4. Research Hypothesis

a) Market segmentation significantly affected the share returns of the firms listed under AIMS.
b) Segmentation significantly affects stock market liquidity and volatility

1.6. Importance of the Study

The study will be significant to the Capital markets industry, listed firms, especially those listed in the AIMS and Investors. It will highlight the effect segmentation of NSE had on listed firms. It will inform the managers of listed firms whether by being segmented into the AIMS they were being punished and therefore pose a challenge to the managers to work to ensure they move to a major segment of the market.

Investors are concerned about liquidity risk. It affects their ability to trade the quantity of shares they want to buy or sell within their desired time-framework (Vassalou et. al., 2005). Most importantly, investors fear that in the event of a financial crisis, they may not be able to exit the market fast enough to contain their losses. These considerations may lead them to shy away from illiquid securities, or require a liquidity-related premium to hold them.

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Given the importance that liquidity risk has in trading assets, it is no surprise that it has received a large amount of attention in academic research. One of the main concerns in this study is to determine what effects segmentation had on liquidity and thus of great importance to investors of firms segmented into AIMS. The study aims to improve our understanding of the sources of liquidity risk and the effects that it has on equities.

The effect on share prices and/or returns in particular if adverse will also act as a wake up call to NSE and the Capital Markets Authority that reforms are necessary but only after a careful analysis of all its effects on the diverse interests of the stakeholders.

CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

National capital markets can be positioned along a continuum from embryonic to mature and emerged markets according to a decreasing 'national cost of capital' criterion (Jacque, 2002). Newly emerging countries are handicapped by a high cost of capital because of 'incomplete' and inefficient financial markets. As capital markets graduate to a higher level of 'emergedness', their national firms avail themselves of a lower cost of capital that makes them more competitive in the global economy and spurs economic growth.

It is against this backdrop that in February 2001 NSE made a decision to segment the market into MIMS, AIMS and FISMS so as to improve the efficiency of the exchange. A robust stock market assists in the rational and efficient allocation of capital, which is a scarce resource (NSE, 2005). The fact that capital is scarce means systems have to be developed where capital goes to the most deserving user. An efficient stock market sector will have the expertise, the institutions and the means to prioritise access to capital by competing users so that an economy manages to realize maximum output at least cost. This is what economists refer to as the optimum production level. If an economy does not have efficient financial markets, there is always the risk that scarce capital could be channeled to non-productive investments as opposed to productive ones, leading to wastage of resources and economic decline. Stock markets are thus supposed to create wealth for both the investors and listed

firms. It, therefore, remains to be seen whether market segmentation yielded any results towards this direction.

2.1.1. Market Segmentation

Qi Li (2004) in his PHD dissertation defines a market as segmented if different investor groups have access to different sets of assets. This definition is very general and is different from other definitions. For example, Campbell (1998) defines a group of securities to be segmented if it has impenetrable barriers. Segmentation can be generated not only because of impenetrable barriers such as legal barriers, but also from other reasons such as information barriers and human behavior. Under this definition, the current world market is segmented since almost all individual investors and institutions can only invest in a portion of world securities.

Numerous examples of market segmentation exist in practice. Perhaps the most obvious example occurs in international security markets due to legal restrictions on ownership or taxes. One important example of market segmentation in the international market is the A and B shares in the Mexican and Chinese Stock exchanges. Additionally, segmentation may be found in domestic markets and an example being the segmentation at NSE where the equity market is divided into MIMS and AIMS.

2.2. Overview of NSE

In Kenya, dealing in shares and stocks started in the 1920's. There was however no formal market. No rules and no regulations to govern stock broking activities. In 1954 NSE was established. NSE is a market that deals in the exchange of securities issued by publicly quoted companies and the Government. The major role that the stock exchange has played and continues to play in the Kenyan economy is that it promotes a culture of thrift, or saving. The very fact that institutions exist where savers can safely invest their money and in addition earn a return, is an incentive to people to consume less and save more (NSE, 2005).

In February 2001 the Kenyan Government realized the need to design and implement policy reforms to foster sustainable economic development with an efficient and stable financial system. In particular, it set out to segment the market into four independent market segments: MIMS, AIMS, FISMS and at a later stage a Futures and Options Market Segment (FOMS). The MIMS was to retain the industrial sub-segments which are; Agricultural, Commercial and Services, Finance and Investment, and Industrial and Allied Sectors.

2.3 Market Segmentation, Liquidity and Share Value

In a segmented capital market, illiquidity in the market in which the shares of a country fund are traded affects only the share price of the fund (S), while illiquidity in the market in which the underlying assets are traded affects only the fund net asset value (NAV), (Chan et.al., 2005). In an integrated market, illiquidity in one market

can easily spill over to another and affect both the fund share price and its underlying asset value. Chan concludes that the closed–end country fund premium, P = ln (S) – ln (NAV), is negatively (positively) affected by the share (asset) market illiquidity in segmented capital markets, but has only an ambiguous association with either share or asset market illiquidity in an integrated market.

Theoretical studies of the effect of illiquidity on asset prices have yielded mixed results. While Kyle (1985) and Allen and Gale (1994) show an important effect of illiquidity on asset prices, Constantinides (1986) and Vayanos (1998) show that illiquidity in the form of transaction costs has a large effect on asset turnover but only a very small effect on asset prices. Empirical studies consistently show, however, that illiquidity depresses asset prices and leads to higher asset returns. Amihud (2002) shows that the aggregate stock returns are higher when the market is less liquid. Amihud and Mendelson (1986), Brennan and Subrahmanyan (1996), and Brennan, Chordia, and Subrahmanyam (1998) show that less liquid stocks tend to have higher returns. Finally, Pastor and Stambaugh (2003) find that stock returns are related, not only to levels of liquidity, but also to the covariance of returns with measures of market liquidity. Since the liquidity spillover and its effect on close substitutes traded in different markets depend on the degree of market segmentation, we expect that the effect of illiquidity on fund premium depends on the degree of integration of the fund's asset market with its share market. (Chan et. al., 2005)

The effect on share value of listing on the NYSE by OTC NASDAQ stocks has been the focus of empirical investigation for many years (Ying et al., 1977; Sanger and McConnell, 1986), but only recently with the development of transactions databases have studies considered the importance of liquidity as a factor in this decision. Christie and Huang (1993) and Kadlec and McConnell (1994) show that the effective spreads on NASDAQ stocks that list on the NYSE drops significantly. They interpret this finding as consistent with Amihud and Mendelson (1986) who show in their analysis of capital market equilibrium that expected returns are an increasing function of liquidity measured in terms of the bid-ask spread. If spread drops following segmentation and or listing, the lower expected returns by investors should give rise to an increase in share value. Kadlec and McConnell (1994), however, also show that the abnormal returns to NYSE listing from NASDAQ are also associated with an increase in the firm's shareholder base. They interpret this finding as consistent with Merton's (1987) extension of the Sharpe-Lintner CAPM with incompleteness in which investors only invest in those securities of which they are aware. This modification allows expected returns to increase with systematic risk, firm-specific risk and relative market value and to decrease with the relative size of the firm's investor base.

In this study, the researcher provides a simple explanation that is based on the liquidity of the markets in which the shares and the assets of the funds are traded. To the extent that liquidity affects asset prices, we should expect returns to reflect the difference between the liquidity of the Alternative Investment Market Segment and

the Main Investment Market Segment, and to vary over time as their relative market liquidity varies. The association between share returns and illiquidity is affected by the degree of market segmentation and the ease with which liquidity shocks are transmitted between markets.

Chan et. al., (2005) and Kyle (1985) show that liquidity has an important effect on share prices and thus in this study the researcher investigates whether segmentation affects liquidity and thence the share prices.

Alexander et al. (1987) were the first to study price reactions for 34 firms from six different countries that were listed on the NYSE, AMEX or NASDAQ between 1962 to 1982. They demonstrate that the cumulative abnormal returns (CARs) for their non-Canadian benchmark sample of firms increase by an annualized 17 percent in the two years before listing and fall by an annualized 33 percent over the three years following listing. The CARs for the Canadian sample were considerably smaller in both periods, which they interpreted as evidence consistent with the market segmentation hypothesis. Foerster and Karolyi (1993) investigate a larger sample of 52 Canadian firms over the 1980 to 1991 period and find a much more dramatic reaction on the order of an annualized 21 percent run-up in the 100-day pre-listing period and an annualized 22 percent post-listing decline. They interpret this finding as evidence of segmentation between Canadian and US market, consistent with other findings by Booth and Johnston (1984), Jorion and Schwartz (1986), and Mittoo

(1992). Recently, Urias (1994) has uncovered similar effects for emerging market stocks from Chile and Venezuela.

2.4. Investor Recognition

The researcher is also drawn to this question by a second branch of the Finance literature that identify significant changes in share price for firms that choose to change the location for their traded shares from one domestic exchange to another. This is important to our study on the assumption that moving from one segment to another would have the same effect. A number of studies have examined how share price increases for firms that list on the NYSE from NASDAQ OTC market and have attributed this outcome to increased investor recognition or superior liquidity. Baker and Meeks (1991) survey the literature on exchange listings and delisting. Important recent contributions include Sanger and McConnel (1986) and Dharan and Ikenberry (1995) which focuses on the post-listing decline in stock prices following NYSE and AMEX listing and Christie and Huang (1993) which examine the liquidity effects of NASDAQ and AMEX listings to the NYSE using transactions data.

Merton (1987) for example, provides a rationale for the effects of greater investor recognition in an extension to the Sharpe-Lintner CAPM, which relaxes the assumption of equal information for investors. He shows that expected returns increase with systematic and firm-specific risk but decrease with the size of the firm's investor base, which he characterizes as "the degree of investor recognition." Amihund and Mendelson (1986) develop the liquidity hypothesis in the context of an

asset-pricing model in which gross returns are an increasing and concave function of liquidity measured by the bid-ask spread. Kadlec and McConnell (1994) show that these two hypotheses can explain in part the abnormal returns to NYSE listing from NASDAQ for a sample of 273 firms from 1980 to 1989.

The key distinction between Merton's (1987) analysis of capital market equilibrium and that of Sharpe, Lintner, and Mossin (i.e. CAPM) is that investors invest only in those securities of which they are "aware". Merton refers to this assumption as incomplete information, however, the more general implication is that securities markets are segmented. Indeed, Merton observes that there are a number of other factors in addition to incomplete information that may contribute to this type of behavior by individuals. For example, the existence of prudent – investing laws and traditions, as well as other regulatory constraints, can also rule out investment in a particular firm by some investors. With this assumption, Merton shows that expected returns depend on other factors in addition to market risk. More specifically, from Merton (1987) the shadow cost of incomplete information for security k can be written as;

$$\lambda_k = \frac{\delta \sigma^2_k \, x_k \, (1 - q_k)}{q_k}$$

Where δ is the coefficient of aggregate risk aversion, σ^2_k is the firm–specific component of security k's return variance, x_k is the value of firm k relative to the aggregate market value of traded securities and q_k is the size of firm k's investor base relative to the total number of investors. The relation between the shadow cost and the incremental expected return on security k is given by:

$$E(R_k) - E(R^*_k) = \lambda_k \frac{E(R^*_k)}{R}$$

Where $E(R_k)$ is the equilibrium expected return on security k for the incomplete information case ($q_k < 1$), $E(R^*_k)$ is the expected rate of return on security k for the complete information case ($q_k = 1$), and R is the return on the riskless security.

The intuition behind Merton's result is straightforward. The absence of a firms specific risk component in the Sharpe-Lintner–Mossin CAPM comes about because such risk can be eliminated (through diversification) and is, therefore not priced. However, in Merton's framework, in which investors invest only in those securities of which they are 'aware' complete diversification is not attainable. The effect of this incomplete diversification on expected returns is greater the greater the firm's specific risk and the greater the weight of the security in the investors' portfolio – measured by market value per shareholder.

For widely held stocks, the effect of Merton's nonmarket risk factors on expected returns is likely to be insignificant. However, for firms with few shareholders for instance those in Alternative Investment Market Segment these factors can be shown to have significant impact on stock price. This suggests that managers of firms with few shareholders have an incentive to undertake activities that expand the investor base of the firm's shares. Merton suggests that one of the ways in which managers can increase the size of the firm's investor base is to have the firm's shares listed on a major exchange. According to his model, the increase in the firm's investor base reduces the firm's cost of capital and increases the market value of its shares. It is in

this spirit that I propose to test this prediction of Merton (1987) using evidence from NSE segmentation into MIMS and AIMS.

2.4.1 Changes in Investor Recognition

Kadlec and McConnell (1994) use the number of registered shareholders from pre-to post listing periods to proxy for changes in Merton's investor recognition factor. They find that consistent with the predictions of the "investor recognition" hypothesis, and the findings of Cowan et.al (1992), the average number of shareholder is greater following listing announcement than before. In the current study this can be measured for the pre- and post segmentation periods.

It could be that the publicity associated with the segmentation reaches some investors who were previously unaware of the security. If so, this would be consistent with Merton's incomplete information argument. However, it is unlikely that these firms were overlooked by the more sophisticated institutional investors.

2.5 Measures of Liquidity

Liquidity is an elusive concept. It cannot be observed directly and generally denotes the ability to trade large quantities quickly, at low cost, and without moving the price. Since liquidity has many dimensions, it is hard to proxy it with a single measure. Many different measures of illiquidity have been used in empirical studies. For example, Amihund and Mendelson (1986) used the quoted bid-ask spread on stock returns and Chalmers and Kadlec (1998) used the amortized effective spread as a

measure of liquidity. Brennan and Subrahmanyam (1996) measured illiquidity with the price response to signed order flow and within the fixed cost of trading based on continuous data on transaction and quotes, and Pastor and Stambaugh (2003) estimated liquidity cost from signed volume related return reversals. Most of these liquidity measures require data that is not readily available.

The liquidity of a market is often measured as the size of its bid-ask spread, but this is an imperfect metric at best. More generally, Kyle (1985) identifies three components of market liquidity: tightness in the bid-ask spread; depth, that is the volume of transactions necessary to move prices; and resiliency, that is the speed with which prices return to equilibrium following a large trade. Persuad (2003) identifies a fourth component, which he calls diversity. This is simply the degree of diversity among market participants in their market views and desired trades. Persuad (2003) argues that lack of diversity can lead to 'liquidity black holes.' These are conditions where liquidity dries up, and a decline (or increase) in prices brings out more sellers (or buyers), further exasperating the price move.

Chan et al. (2005) measure of illiquidity is related to Kyle's (1985) lambda, which measures the effect of order flow on prices. Amihund (2002) shows how to construct a Kyle-type measure of illiquidity using only daily returns and volume, which are readily available for almost every market.

For each fund, Chan et.al (2005) measures illiquidity each month for the fund itself, for the US market in which the fund shares are traded, and the corresponding foreign market in which the fund underlying assets are traded. Following Amihund (2002), Chan et.al (2005) illiquidity measure for stock i at month t in market c, $IL_{i,c,t,}$ is defined as the average ratio of the absolute daily price change to a measure of the trading volume:

$$IL_{i,c,t} = \frac{1}{Dt} \sum_{d=1}^{Dt} | R_{i,d} | / VOL_{i,d,} \qquad 2.5.1$$

Where D_t is the number of trading days in month t, R_{id} and VOL_{id} are, respectively, stock i's daily return and daily volume in day d of month t. Unlike Amihund (2002) who calculates illiquidity annually for stocks with at least 200 daily observations each year, Chan et.al (2005) uses only around 21 days to calculate IL for each month, so that they can relate illiquidity to fund premia at a monthly frequency.

Chan et.al (2005) calculates the illiquidity of the shares of fund f in month t, $IL_{f,t,}$ using equation (2.5.1) from the fund's daily share price return and volume, and the illiquidity for the portfolio of all 41 funds is obtained by averaging over the 41 individual funds' illiquidity $IL_{f,t}$ at each month t:

$$FIL_t \equiv \frac{1}{41} \sum_{f=1}^{41} IL_{f,t} \qquad 2.5.2$$

The market wide illiquidity for the asset market c, CILc,t ($USIL_T$), is calculated as the equally weighted average of the illiquidity of all qualifying individual stocks in a representative market index for that market:

$$CIL_{c,t} = \frac{1}{N_{c,t}} \sum_{i=1}^{Nc,t} IL_{i,c,t.} \qquad 2.5.3$$

Where $N_{c,t}$ is the number of stocks in the index of country c in month t.

2.6 Exchange Listing and Share Value

Sanger and McConnell (1986) analyze the returns to 329 OTC stocks that were listed on the NYSE over the period 1966 through 1977. Their purpose is twofold: they address the issue of whether a major stock exchange listing over this period is associated with an increase in share value; and second, they assess whether the impact of exchange listing on share value was diminished by the introduction of the National Association of Security Dealers Automated Quotation (NASDAQ) system in 1971.

To conduct their investigation, Sanger and McConnell note that the first announcement of an impending listing is the publication of a notice of the listing application in the NYSE's Weekly Bulletin. Thus, they use the application week as the announcement date in their analysis of excess returns. They divide the sample into a pre-NASDAQ sample that includes 153 stocks listed during the period 1966 to 1970 and a post-NASDAQ sample that includes 166 stocks listed during the period 1971 to 1977.

For each sample, they calculate average cumulative excess (i.e., market model adjusted) returns for the intervals encompassing the application week through the following week, the application week through the week of listing, and the application

week through two weeks after the week of listing. They refer to the cumulative excess returns over the three intervals as the initial listing effect, the gross listing effect, and the net listing effect. Identification of the excess returns over the application week through the following week as the initial listing effect is, perhaps, obvious-in an efficient market, the valuation effects of listing should be incorporated in stock price at the initial announcement date. In particular, Sanger and McConnell (1986) report that the market model excess returns continue to be positive and significant following the application week up through the week of listing-an interval that averages eight weeks in duration. Over the first two weeks following listing, however, excess returns are significantly negative-especially in the post-NASDAQ period. Interpretation of the results depends upon whether the initial, gross, or net listing effect is considered.

Sanger and McConnell (1986) find that for the pre-NASDAQ period, new listing on a major segment of the exchange are associated with positive and significant excess returns regardless of the interval considered. The same is not true for the post-NASDAQ period and the conclusion as to whether exchange listing is associated with a significant increase in stock price depends upon whether the average negative excess returns is considered part of the listing effect. In the absence of the decline in stock price following listing, listing on the NYSE is associated with a significant increase in stock price even in the post-NASDAQ period.

Finally Sanger and McConnell (1986) compare excess returns between the pre- and post-NASDAQ periods. Their tests indicate that excess returns over each of these

intervals are significantly lower in the post-NASDAQ period than in the pre-NASDAQ period, regardless of the interval considered. They interpret their results to indicate that NASDAQ has reduced the net advantage of an NYSE listing.

2.7 Event Studies

NSE segmentation can be taken as an event and thus the use of event study methodology applied. An event study, in economics, finance or accounting research, is an analysis of whether there was a statistically significant reaction in financial markets to past occurrences of a given type of event that is hypothesized to affect public firms' market values. Loosely speaking, a t-test of the change in price of some asset and/or unexpectedly large increase or decrease in asset values relative to standard deviation of a typical change (Dwyer, 2001). The methodology is based on the assumption that capital markets are sufficiently efficient to evaluate the impact of new information (events) on expected future profits of the firms (Dasgupta et. al., 1998).

Event studies are used to assess the economic impact of a given event. The standard procedure is to measure, in terms of the unexpected or abnormal return on the underlying security, by comparing the actual return realized on the occurrence of the event with the expected or normal return, i.e. the return that would have been expected in the absence of the event.

There is an extensive literature concerning various aspects of event methodology, including: the choice of measurement interval (Brown and Warner 1980 and 1985, and Morse, 1984); infrequent trading (Scholes and Williams, 1977); event clustering (Patel, 1976, Collins and Dent, 1984, and Chandra and Balachandran, 1990); and, specifically in relation to the market model, the most frequently used model of expected returns (Strong, 1992).

Despite this extensive literature, a continuing feature of many event studies is the use of a number of alternative techniques to estimate expected returns (Limmack, 1991; Frank and Harris, 1993 and Parkinson and Dobbins, 1993). Whilst such an approach may be prudent, it does suggest the absence of a framework within which the competing models can be assessed. Using simulated data Brown and Warner (1985) concluded that "methodologies based on the OLS market model and using standard parametric tests are well specified under a variety of conditions." However, Chandra, Moriarity and Willinger (1990) state that Brown and Warner's "conclusions are a result of comparing inconsistent test procedures". Chandra et. al., (1990) conclude that with event clustering there is an advantage in using test statistics which correct for cross sectional dependence.

According to Dwyer, (2001), the steps in event study are as follows:

i. Identification of the events of interest and definition of the event window-a period over which the event occurs and then definition of an estimation window-a period over which parameters are estimated.

ii. Selection of the sample set of firms to include in the analysis. Once the event dates are known, returns are collected around these dates for each of the firms in the sample. The analyst decides whether to collect weekly, daily, or shorter interval returns around the event and how many periods of returns before and after the announcement date will be considered as part of the event window.

iii. Prediction of a 'normal' return during the event window in the absence of the event.

iv. Estimation of the abnormal return within the event window, where the abnormal return is defined as the difference between the actual and predicted (normal) returns. The excess returns, by day, are averaged across all firms in the sample and a standard error is computed.

v. Testing whether the abnormal return is statistically different from zero. This is answered by estimating the t statistic for each day, by dividing the average excess return by the standard error. If the t statistics are statistically significant, the event affects returns; the sign of the excess return determines whether the effect is positive or negative.

Event study methodology relies on capturing any abnormal return to a particular security in a given period (U_{jt}), which is simply the difference between actual return

(R_{jt}), and that which would be expected in the absence of the event, the 'normal' return (R_{Jt}). Correct specification of the counterfactual, 'normal' return is critical for the successful application of the method (Strong, 1992). Several methods may be used to obtain or estimate normal and abnormal returns: the single-index model (constant mean return model), the market model and the capital asset pricing model (CAPM) are the most widely used.

The market model assumes a linear relationship between the return of any security to the return of the market portfolio:

$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}$

With $E(e_{it})=0$ and $Var(e_{it}) = \delta^2_{ei}$ (2.7.1)

Where t is the time index, i= 1,2,…, N stands for security, R_{it} and R_{mt} are returns on security i and the market portfolio respectively during the period t, and e_{it} is the error term for security i.

Equation (1) is generally estimated over a period which runs between 120 and 210 days prior to the event up to 10 days prior to the event. The event window is defined as the period from 10 days prior to the event to 10 days after the event. With the estimates of α_i and β_i from equation (1), one can predict normal return during the days covered by the event window. The prediction error (the difference between the actual return and the predicted normal return), commonly referred to as the abnormal return (AR), is then calculated as:

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \qquad (2.7.2)$$

Under the null hypothesis, the abnormal returns will be jointly normally determined with zero conditional mean and conditional variance $\delta^2 (AR_{it})$:

$$\sigma^2 (AR_{it}) = \sigma^2_{ei} + \frac{1}{L}\left[1 + \frac{(R_{mt} - \bar{R}_m)^2}{\sigma^2_M}\right] \qquad (2.7.3)$$

Where L is the estimation period length (i.e number of days used for estimation) and $\bar{R}_m$ is the mean of the market portfolio. With L large, $\sigma^2 (AR_{it}) \rightarrow \sigma^2_{ei}$.

For each individual event, one can estimate the abnormal return and relevant test statistics at each instant in time within the event window. However, in order to draw overall inference on the abnormal return observation for the event(s) of interest, one can also aggregate the abnormal returns. For any given subset of N events (or securities), the sampled aggregated abnormal returns (AAR_t) at each instant t within the event window is computed as

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \qquad (2.7.4)$$

For large L, the variance is

$$VAR (AAR_t) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma^2_{ei} \qquad (2.7.5)$$

To test for the persistence of the impact of the event during a period ($T_2 - T_1$), the abnormal return can be added to obtain the cumulated abnormal returns ($CAR_i (T_1, T_2)$) for security i over the period $(T_2 - T_1)$.

$$CAR_I (T_1, T_2) = \sum_{t=T_1}^{T1} AR_{it} \qquad (2.7.6)$$

Where $T_a \leq T_1 < t < T_2 \leq T_b \in$ event window, and T_a and T_b are the lower and upper limits of the event window, respectively. Asymptotically (as L increases) the variance of the cumulative abnormal return for security i is:

$$\sigma^2_i (T_1, T_2) = (T_2 - T_1 + 1)\, \sigma^2_{ei} \qquad (2.7.7)$$

To test the null hypothesis of zero cumulative abnormal return, one can formulate a Z test as

$CAR_i (T_i, T_2) \sim N(0, \sigma^2_i (T_i, T_2))$:

$$Z = \frac{CAR}{(\sigma^2_i (T_1, T_2))^{1/2}} \sim N(0,1) \qquad (2.7.8)$$

An aggregation of interest can also be performed across both time and events. In that scenario, the average cumulative abnormal return is defined as:

$$CAAR (T_1, T_2) = \frac{1}{N} \sum_{i=1}^{N} CAR_i (T_1, T_2) \qquad (2.7.9)$$

Where N is the number of events. The variance of CAAR is:

$$Var (CAAR (T_1, T_2)) = \frac{1}{N^2} \sum_{i=1}^{N} \sigma^2_i (T_1, T_2) \qquad (2.7.10)$$

Under the null hypotheses that the abnormal returns are zero,

$$Z = \frac{CAAR (T_1, T_2)}{(var(CAAR(T_1, T_2)))^{1/2}} \sim N(0,1) \qquad (2.7.11)$$

As pointed by MacKinlay (1997), this distributional result is asymptotic with respect to the number of securities N and the length of estimation window L.

2.8 Capital Markets Theory

Why do we observe differences in economic performance among countries; across industries in the same economy; and across firms belonging to the same industry? What could be the role of the financial system in explaining cross-country variations in economic performance? While determinants of cross-country economic growth have been of great interest to development economists and growth economic theory, the role of financial markets and institutions has traditionally received very little attention. Recent finance literature reports strong relations between indicators of financial development and economic performance in the real sector, indicating a positive role for capital markets and institutions (see, e.g., Levine (1998), Levine and Zervos (1998); and Rajan and Zingales (1998)). Levine and Zervos (1998) for example, find a strong correlation between financial development, and growth in per capita GDP and productivity. Yet, despite such progress in exploring the finance-growth nexus, we are far from understanding the exact mechanisms through which the financial system could affect economic performance in the real sector. As Zingales (2003) notes, this lack of understanding has been one of the reasons why it has been so difficult to draw policy conclusions from the finance-growth literature.

There is widespread recognition that institutions are important. Goodin (1996) argues that the basic value of institutions is that they provide stability and reliability by

enabling a nested system of rules to govern current and future behavior. In this respect, they can provide more certainty about the future and hence improve predictability and reduce risk.

North (1990) makes the powerful assertion that institutions are the underlying determinant of the long-run performance of economies. There is thus the need to utilize a corporate finance framework to investigate empirically the effects segmentation had on the NSE.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

An empirical study of the NSE was conducted. The aim of the study was to explore the effect of segmenting NSE into three market segments, MIMS, AIMS and FISMS, however, the study focused on the two equity segments MIMS and AIMS. Through segmentation an event happened and thus Event-study methodology was employed in this study.

3.2 Population and Sample of The Study

This study used all the ordinary shares listed in the Nairobi Stock Exchange (NSE) as the population. There was a date of interest in this study, the date of segmentation that is, 1st February 2001. The population incorporated all companies listed on that date from which the sample was selected. There are forty-eight listed and active companies in the Nairobi Stock Exchange, classified into the Main Investment Market Segment (MIMS) and the Alternative Investment Market Segment (AIMS) as per appendix I.

There were only three newly listed companies between 2000 and 2004, which included African Lakes Corporation, Mumias Sugar Company, and ICDC Investments Company Limited. Two companies, Hutchings Biemer and African Lakes Corporation, were suspended in the same period as five others, including Pearl Dry Cleaners, Lonrho Motors, Theta Group and Regent Undervalued Assets, were de-

listed for non-compliance with listing requirements. Also suspended were BOC and Carbacid Limited and TPS Serena shares were suspended to allow the process of merging that was expected to be concluded by the year 2005.

3.2.1 Sampling Technique

The study followed two sampling techniques in obtaining a viable set of stocks. For firms listed in MIMS, purposive sampling technique was employed and thus picked out the 20 share index firms due to the fact that these firms are representative of the entire market and thus allowed the researcher to control for firm specific risk.

All firms in AIMS formed the study sample. However the study followed a sequential sampling technique in obtaining a viable set of stocks. The reason for selecting this technique was because the data needed, involves prices for which some shares may not be having due to their inactive nature. The sample considered only the shares that have prices for every month of consideration. They were then sorted through pre-ranking by trading frequency for all listed stocks. The data was first filtered according to firms that either were suspended or did not trade during the period under consideration, that is, where a share price is not available for calculation of returns.

3.3 Data Type, Source and Collection.

In this study, secondary data sources from the NSE and the annual financial reports of the listed companies were employed. Daily data for prices and volumes on individual stocks were obtained from NSE. Share prices after being adjusted for dividends, seasonal equity offerings and stock splits, if any, were used in calculating security returns and risk. For each company, the closing share price for every month was taken for the period June 2000 to September 2001 giving 76 weeks of data.

The event window will be defined as follows;

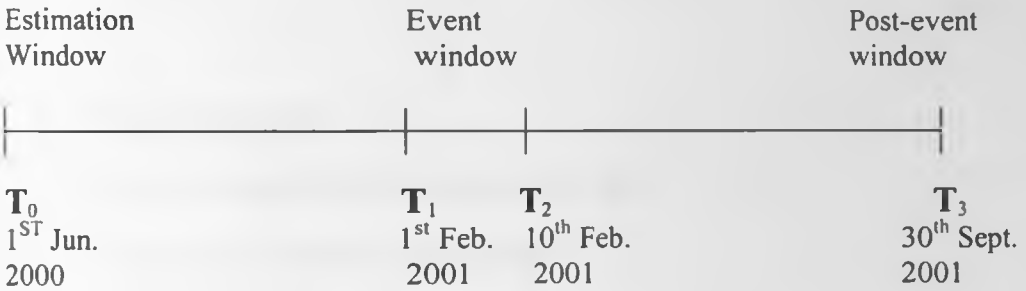

Fig 3.3: Formal Definition of Event Window

3.4 Variables Definition and Measurement

3.4.1 Changes in Share Prices

To document the return patterns surrounding the segmentation announcement as well as obtain residuals for hypothesis testing, the event study methodology pioneered by Fama et al. (1969) was used to measure the stock price effects of NSE segmentation. The returns from the share prices and the capital gains were computed as follows.

$$R_{it} = \frac{(P_{t-1}-P_t)}{P_{t-1}} \qquad 3.4.1.1$$

Where:

Rt – is the stocks return in the week't'

Pt – is the last traded price in week't'

Pt-1 – is the last traded price of stock (share) in the week 't-1'

The segment return R_m for the purpose of this study is a series of averages of weekly returns of each firm stock (share) constituting the segment.

$$Rs = \frac{(R_{1t}+R_{2t}+R_{3t}\ldots R_{nt})}{n.} \qquad 3.4.1.2$$

Where:

Rs - The segment return

R_{1t} - return on the stock of the company in week t

n - The number of firms in the segment.

3.4.2 Liquidity

The study's measure of liquidity is related to Chan et.al (2005) but unlike him who calculates it from daily prices and volume, the study used weekly data. Following Chan et.al (2005) liquidity measure for stock i at week t in market c, $IL_{i,c,t,}$ is defined as the average ratio of the absolute daily price change to a measure of the trading volume:

$$IL_{i,c,t} = \frac{1}{Dt} \sum_{d=1}^{D_t} |R_{i,d}| / VOL_{i,d,} \qquad 3.4.2.1$$

Where D_t is the number of trading days in week t, R_{id} and VOL_{id} are, respectively, stock i's weekly return and weekly volume in day d of week t. Unlike Amihund (2002) who calculates illiquidity annually for stocks with at least 200 daily observations each year, the study used only around 5 days to calculate IL for each week.

The market wide liquidity for each segment of the asset market c, CILc,t ($USIL_T$), was calculated as the equally weighted average of the liquidity of all qualifying individual stocks in a representative sample for that segment:

$$CIL_{c,t} = \frac{1}{N_{c,t}} \sum_{i=1}^{Nc,t} IL_{i,c,t}, \qquad 3.4.2.2$$

Where $N_{c,t}$ is the number of stocks in segment c in week t.

3.5 Data Analysis

The data was analyzed using Ms. Excell and SPSS. The sample mean and standard deviation will be calculated to describe and establish the variance in returns and liquidity of AIMS and MIMS. The returns and the liquidity of AIMS were determined both for the period before and after segmentation. The normal return and the abnormal return within the event window were determined.

The excess returns, was averaged across all firms in the sample and a standard error computed. The abnormal return was then tested if it's statistically different from zero by estimating the t statistic for each week, by dividing the average excess returns by

the standard error. T-statistics are computed using standard error that account for non-dependence of the data collected. (95% confidence level of estimate will be used). The t-statistic value will be considered significant if the P value is less than 0.05.

To control for market wide variations the study measured the effect segmentation had on both MIMS and AIMS by comparing if the effect on the variables above are not statistically different.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION & INTERPRETATION

4.1 Introduction

The aim of the study was to explore the effect segmenting NSE into two market segments, MIMS and AIMS had on existing shareholders, potential investors and the listed firms. Data was collected from NSE to test the significance of segmenting the market and whether it was necessary or not. The data collected were analyzed using descriptive statistics and event study methodology.

To control for other intervening variables stocks that issued dividends during the period were left out of the study. George Williamson stock being both a 20-share index firm and an AIMS firm was included in the study under AIMS.

4.2 Changes in share prices

Appendix III gives the descriptive statistics of the variations in share prices of selected companies, a summary for all the firms sampled in each segment, and a test of whether the variations are statistically significant. Following the event study methodology pioneered by Fama et al. (1969) the results for the two market segments are divided into; Estimation, Event and Post event windows.

Alternative Investment Market Segment

Nine firms in AIMS were sampled and the results for changes in share prices indicate a mean return of -0.2562 with a standard deviation of 0.7011 and a t-value of -1.097 for the estimation window. The event window experiences a much lower return of -2.2226 with greater variability, as the standard deviation is 8.459 and a t-value of -0.788. The results for the post event window are; mean of 0.01938 with a standard deviation of 1.5533 and a t-value of 0.037 (See Appendix III).

The results indicate that the normal return for the nine firms in AIMS was -0.26 and the actual return within the event window was -2.22 giving an abnormal return of -1.96, which is statistically different from zero. The post event window return is found to be 0.19, which shows that the abnormal returns are persistent even after segmentation however now having a positive effect.

The tests for significance (t-tests) were run for each firm separately and thereafter for all firms in the segment. The average mean for the whole period is found to be -0.8196 with a standard deviation of 1.22 and a t-value of 0.365 implying that changes are very significant at the 0.05 significance level. The P-values are 0.305, 0.453 and 0.971 for the Estimation window, Event window and Post event window respectively indicating that the changes are significant.

The abnormal returns are hypothesized to be explained by the less interest accorded to these shares by shareholders due to segmentation. However, to control for market wide variations and make better conclusions the same variables are measured for

MIMS as shown below.

Main Investment Market Segment

Eighteen firms in MIMS were sampled and the results for changes in share prices indicate a mean return of -0.2192 with a standard deviation of 0.721 and a t-value of -1.289 for the estimation window, which are not significantly different from the results of AIMS for the same window. The event window experiences a much higher return pointing to the fact that the lower return in AIMS for the same window was not caused by market wide factors. The event window has a mean of 3.2322 with a standard deviation of 15.15180 and a t-value of 0.905 while the same statistics for the post event window are -0.831, 0.67724 and -5.206 respectively. The results are significant for the Estimation and Event windows as shown by the P-values which are 0.215 and 0.378 but not significant during the Post event window which has a P-value of 0.0003 (See Appendix III).

The results indicate that the normal return for the firms in MIMS was -0.216, which is not significantly different from the return to AIMS firms for the same estimation window indicating that before segmentation shareholders ranked these firms equally. The actual return within the event window was 3.23 compared to -2.22 achieved by AIMS firms, giving an abnormal return of 3.49, which is statistically significant from zero. The post event window return is found to be -0.83, which shows that the abnormal returns are still persistent even after segmentation however this time exhibiting a negative effect.

The average mean for the whole period is found to be 0.0697 with a standard deviation of 2.82 and a t-value of 0.97 implying that changes are significant at the 0.05 significance level but not as highly significant as those envisaged under AIMS.

4.3 Liquidity-Absolute Volumes traded

Kyle (1985) identifies three components of market liquidity, one being depth, that is, the volume of transactions necessary to move prices. The study therefore used absolute volume of shares traded as its first measure of liquidity. The study therefore compares the absolute volumes traded for each of the segments to determine if there were any significant changes on volume traded and thus liquidity of the market.

The proponents of NSE segmentation suggested that, the reason behind the idea was to increase listings and thus improve liquidity. In sharp contrast the model predicted a negative relationship between segmentation and liquidity. Appendix IV gives the results of mean comparisons for all the firms sampled in each segment. It provides the mean and the tests of significance for the three windows separately detailing each firm in the sample and then the segment as a whole.

Alternative Investment Market Segment

The mean volume traded is 3855 with a standard deviation of 7130 and a t-value of 1.622 for the estimation window. During the event window the volume traded doubles having a mean of 6993 with a standard deviation of 15530 and a t-value of 1.351. During the post event window the volume traded normalizes back to a low of

4370 with a standard deviation 7673 and a t-value 1. 709. The variations in volume traded are significant with P-values of 0.143, 0.214 and 0.126 for the estimation window, event window and the post event widows respectively (See Appendix IV).

The results indicate a strong negative relationship between segmentation and volume traded for AIMS with a mean of 5073.093 and a t value of 5.221. The event window recorded the highest mean of 6993.722 suggesting that there was a lot of trading during this period as investors tried to dispose of their holdings in AIMS as they viewed the firms as being inferior.

Main Investment Market Segment

The results for the changes in absolute volume traded for the estimation window is; a mean of 75664, with a standard deviation of 127721 and a t-value of 2.513. Unlike the results under AIMS, the event window records the lowest volume traded with a mean of 22774, standard deviation of 16010 and a t-value 6.035. The post event window mean is 53214 with a standard deviation of 118911 and a t-value 1.899. The P-values are 0.022, 0.0001 and 0.075 for the estimation, event and post event widows respectively indicating that the changes were not as significant as those in AIMS (See Appendix IV).

The findings differ with those of AIMS supporting the observation made above. MIMS mean volume traded is 50550.88 with a t-value of 3.298 with the event window having the lowest volume traded of 22774. Although still higher than that of

AIMS, this shows that there was less interest in these stocks for the same period suggesting that the high volume traded under AIMS during the event window resulted from the effects of segmentation.

4.3.1 Liquidity-Trading Ratio

Following Chan et.al., (2005) the study measured liquidity for each stock at weekly intervals using the daily prices and volume traded. This provides a trading ratio which is used as the study's second measure of liquidity. The ratio data is run to compare the means and compute tests of significance. Appendix V gives these descriptive statistics for each of the firms sampled and an average for each of the segment for all the three windows.

Alternative Investment Market Segment

The mean for the trading ratio for the estimation window is 0.0022 with a standard deviation of 0.0061 and a t-value of 1.089. The event window experience a negative effect in liquidity as the trading ratio reduces with a mean of -0.003, a standard deviation of 0.00757 and a t-value of -0.887 while the post event window has a mean of 0.0017 with a standard deviation of 0.0077 and a t-value of 0.619. The P-values are 0.308, 0.425 and 0.556 for the estimation, event and post event windows respectively indicating that the results are significant at the 0.05 level of significance (See Appendix IV).

The results are consistent with those obtained when the descriptive statistics were run for absolute volumes. The mean is statistically significant at 0.0003 with a t value of 0.182. The event window has the lowest mean at -0.003 from the fact that share prices have been taken into account and since there was less interest in the shares investors were rushing to sell and the prices were on a downward trend. This is in support of the assertion that liquidity was adversely affected by segmentation.

Main Investment Market Segment

The mean for the estimation window is 0.000024 with a standard deviation of 0.00068 and a t-value of 1.53. Unlike the findings in AIMS, the event window has a higher trading ratio implying that the liquidity of the mark improved with a mean of 0.00082, a standard deviation of 0.104 and a t-value of 0.334 while the post event window has a mean of -0.00046 with a standard deviation of 0.00077 and a t-value of -2.544. The results are also significant at the 0.05 level with P-values of 0.88, 0.743 and 0.021 for the estimation, event and post event windows except for the post event window which is insignificant (See Appendix IV). .

Consistent with the results above MIMS have a higher mean showing that liquidity in this segment was still superior. The average mean is 0.0002904 with a t value of 1.093 hence statistically significant with the mean for the event window being the highest indicating that the stocks showed renewed interest leading to higher prices because the results for volume traded had been found out to be the lowest.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION & RECOMMENDATIONS

The major contribution of this study has been the determination of whether segmentation of NSE was harmful to any of the listed firms and investors. It sought to answer the question as to whether segmentation was necessary or not. The results have important implications because investor recognition and liquidity have significant influence on share prices and thence returns. Specifically, the study shows that segmentation of security markets has its adverse effects. Shareholders of firms segmented into AIMS found it difficult in liquidating their shares; and potential investors lost interest in the stocks of these firms.

Results indicate that liquidity and share prices of the listed firms were negatively affected after they were segmented into an 'inferior' segment. This was double tragedy as even the firms and shareholders of those firms that remained in the MIMS experienced some of these adverse effects. The research also indicates that investor recognition was adversely affected, as there is significance evidence that volume traded went down. The results do not support Jacque, (2004) assertion that segmentation is a form of financial innovation which could lead to efficiency and thus a reduction in the cost of capital without a commensurate increase in systematic risk as no new listings were seen during this period.

The results do not support international asset pricing models that predict that segmentation of capital markets leads to a reduction of the cost of capital as risk is

diversified. The study indicates that these benefits only accrue to the few large and well-known firms preferred by most investors and those are the ones in MIMS.

The results indicate that firms listed in different market segments could be interpreted differently by different investors. Firms listed in AIMS signaled low rating and thus the cost of capital of these firms must have gone up, forcing such firms to raise capital expensively. In literature such firms face under investment problem. Those holding shares of firms listed in AIMS must have found it difficult disposing their shares thus forced to incur liquidity costs.

In support of evidence produced by Foerster and Karolyi (1996) that important inferences pertaining to the issue of capital market integration and segmentation can be drawn from the reaction of stock prices, from the study NSE segmentation significantly affected the share prices of firms that were listed in AIMS and thus Capital Markets Authority should have taken into account these effects before the decision to segment was made. The effect on share prices are adverse acting as a wake up call to NSE and the Capital Markets Authority that reforms are necessary but only after a careful analysis of all its effects on the diverse interests of the stakeholders.

The results further point to the fact that by segmenting the market, the firms that were to lie in AIMS were being punished and therefore pose a challenge to the managers to work to ensure they move to a major segment of the market.

5.1 Policy Implications

The segmentation carried out by NSE was meant to lead to financial innovation by opening up the market to new smaller firms, this was not achieved and instead it resulted to losses to investors. The study should serve as a wake up call to NSE and the Capital Markets Authority that reforms are necessary but after a careful consideration of its effects on all stakeholders especially the investors. Therefore there is the necessity of putting policies in place to guard against such reforms that are done without any studies being carried out.

5.2 Limitation of the Study

The first limitation regards the fact that there are no locally known studies on stock market segmentation. Generally this type of segmentation was the only one of its kind and thus the review of literature heavily relied on studies carried elsewhere that were different in nature to have deductions made for the local scene.

The study has made an implicit assumption that information on which listed firms were to lie where, only came to the market on the segmentation date which has been taken to be the event date. The market has also been assumed to be efficient and thus this information was immediately reflected in the share prices. It has been assumed further that there were no other significant intervening variables that might have affected the share prices that went unrecorded. However to control for such intervening variables firms that issued dividends during the period under study were left out of the sample.

5.3 Recommendations for Further Research

The area of Stock market segmentation is not only fairly new in Kenya but also to other stock markets in the world. The literature on stock market segmentation is based only on the west where markets are more efficient and thus the inferences could be different.

Market segmentation, investor recognition and liquidity thus have to be explored further in Kenya. An interesting extension to the current research would be to consider if segmentation is a form of financial innovation and is so what benefits can be derived from it.

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APPENDICES

APPENDIX I: LIST OF COMPANIES AND THEIR SEGMENTS

Main Investment Market Segment (MIMS)

Agricultural

Brooke Bond Ltd. Ord. 10.00
Kakuzi Ltd. Ord. 5.00
Rea Vipingo Plantations Ltd. Ord. 5.00
Sasini Tea and Coffee Ltd. Ord. 5.00

Commercial and Services

African Lakes Corporation PLC Ord. 5.00
Car and General (K) Ltd. Ord. 5.00
CMC Holdings Ltd. Ord. 5.00
Hutchings Biemer Ltd. Ord. 5.00
Kenya Airways Ltd. Ord. 5.00
Marshalls (E.A) Ltd. Ord. 5.00
Nation Media Group Ord. 5.00
Tourism Promotion Services Ltd. Ord.5.00 (Serena)
Uchumi Supermarket Ltd. Ord. 5.00

Finance and Investment

Barclays Bank Ltd. Ord. 10.00
C.F.C Bank Ltd. Ord. 5.00
Housing Finance Co. Ltd. Ord. 5.00
I.C.D.C Investments Co. Ltd. Ord. 5.00
Jubilee Insurance Co. Ltd. Ord. 5.00
Kenya Commercial Bank Ltd. Ord. 5.00
National Bank of Kenya Ltd. Ord. 5.00
NIC Bank Ltd. Ord.5.00
Pan African Insurance Ltd. Ord.5.00
Standard Chartered Bank Ltd. Ord. 5.00

Industrial and Allied

Athi River Mining Ord. 5.00
B.O.C Kenya Ltd. Ord. 5.00
Bamburi Cement Ltd. Ord. 5.00
British American Tobacco Kenya Ltd. Ord. 5.00
Carbacid Investments Ltd. Ord. 5.00
Crown Berger Ltd. Ord. 5.00
Dunlop Kenya Ord. 5.00
E.A Cables Ltd. Ord. 5.00
E.A Portland Cement Ltd. Ord. 5.00
East African Breweries Ltd. Ord. 10.00
Firestone East Africa Ltd. Ord. 5.00
Kenya Oil Company Ltd. Ord. 5.00
Mumias Sugar Company Ltd. Ord. 2.00

Kenya Power and Lighting Ltd. Ord. 5.00
Total Kenya Ltd. Ord. 5.00
Unga Group Lltd. Ord. 5.00

Alternative Investment Market Segment
A. Baumann and Company Ltd. Ord. 5.00
City Trust Ltd. Ord. 5.00
E.A Packaging Ltd. Ord. 5.00
Eaagads Ltd. Ord. 1.25
Express Ltd. Ord. 5.00
Williamson Tea Kenya Ltd. Ord. 5.00
Kapchorua Teaa Company Ltd. Ord. 5.00
Kenya Orchards Ltd. Ord. 5.00
Limuru Tea Company Ltd. Ord. 5.00
Standard Newspapers Group Ord. 5.00

Fixed Income Securities Market Segment Preference Shares
Kenya Power and Lighting Ltd. 4.0% Pref. 20.00
Kenya Power and Lighting Ltd. 7.0% Pref. 20.00
Marshalls (East Africa) Ltd. 7% Pref. 20.00
Standard Newspapers Group Pref. 5.00
Kenya Planters Co-operative Union 10% Unsec. Red Loan Stock 1996 – 2000
East African Development Bank (TB + 0.75%) 2003
Government of Kenya Treasury Bonds (Government Securities)

APPENDIX II: NSE 20 SHARE INDEX FIRMS.

Unilever Tea Kenya Limited
Williamson Tea Kenya Limited.
Kakuzi
Sasini Tea and Coffee Limited.
Uchumi Supermarket.
Kenya Airways Limited
TPS-Serena
Nation Media Group
Barclays Bank (K) Limited.
Diamond Trust Bank Kenya Limited.
Kenya Commercial Bank Limited
Standard Chartered Bank Limited.
Bamburi Cement Limited
British Oxygen Company Kenya Limited
National Industrial Credit Bank Limited
East Africa Breweries Limited
Sameer East Africa Limited
Kenya Power and Lighting Company Limited
Total Kenya Limited.
BAT Kenya Limited

APPENDIX III: CHANGES IN SHARE PRICES

AIMS-ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	32	-1.443605	3.3486366	.5919609
CTrust	32	.502717	2.6524139	.4688850
EAPack	32	-.040801	12.8708396	2.2752645
Eagads	32	-.559931	3.2524787	.5749624
Express	32	-.867666	4.1293337	.7299700
GWK	32	.797518	4.4214321	.7816062
Kapchorua	32	.000000	.000000(a)	.0000000
Limuru	32	.000000	.000000(a)	.0000000
Standard Media	32	-.694877	4.9322848	.8719130

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Aboum	-2.439	31	.021	-1.4436053	-2.650918	-.236293
CTrust	1.072	31	.292	.5027174	-.453580	1.459015
EAPack	-.018	31	.986	-.0408008	-4.681233	4.599632
Eagads	-.974	31	.338	-.5599313	-1.732575	.612712
Express	-1.189	31	.244	-.8676661	-2.356450	.621117
GWK	1.020	31	.315	.7975180	-.796578	2.391614
Standard Media	-.797	31	.432	-.6948772	-2.473155	1.083401

AIMS-ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	9	-.2562938	.701111751	.23370391

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
VAR00001	-1.097	8	.305	-.256293889	-.7952160	.28262831

AIMS-EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	2	.740038	1.0465717	.7400380
CTrust	2	.000000	.000000(a)	.0000000
EAPack	2	3.334812	4.7161357	3.3348115
Eagads	2	.000000	.000000(a)	.0000000
Express	2	.000000	.000000(a)	.0000000
GWK	2	.518135	.7327531	.5181347
Kapchorua	2	.000000	.000000(a)	.0000000
Limuru	2	.000000	.000000(a)	.0000000
Standard Media	2	-24.59635	35.2048180	24.893655

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Aboum	1.000	1	.500	.7400380	-8.663036	10.143112
EAPack	1.000	1	.500	3.3348115	-39.03787	45.707610
GWK	1.000	1	.500	.5181347	-6.065391	7.101660
Standard Media	-.988	1	.504	-24.5961353	-340.8986	291.70605

AIMS-EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMSEVENT	9	-2.222572	8.4590817	2.8196939

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMSEVENT	-.788	8	.453	-2.2225722	-8.724798	4.279654

AIMS POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	33	.052014	4.4978360	.7829728
CTrust	33	-1.059175	3.8590264	.6717703
EAPack	33	-.084575	2.0465354	.3562561
Eagads	33	.000000	.000000(a)	.0000000
Express	33	-2.003386	6.2463331	1.0873470
GWK	33	-.052285	2.3450313	.4082176
Kapchorua	33	-.199165	1.3941197	.2426851
Limuru	33	-.229604	1.3189730	.2296037
Standard Media	33	3.750645	21.2016581	3.6907349

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Aboum	.066	32	.947	.0520137	-1.542850	1.646877
CTrust	-1.577	32	.125	-1.0591749	-2.427526	.309176
EAPack	-.237	32	.814	-.0845748	-.810245	.641095
Express	-1.842	32	.075	-2.0033865	-4.218240	.211467
GWK	-.128	32	.899	-.0522851	-.883797	.779227
Kapchorua	-.821	32	.418	-.1991652	-.693499	.295168
Limuru	-1.000	32	.325	-.2296037	-.697291	.238084
Standard Media	1.016	32	.317	3.7506451	-3.767136	11.268426

AIMS POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMSPOST	9	.019385	1.5533971	.5177990

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMSPOST	.037	8	.971	.0193854	-1.174661	1.213432

MIMS-ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	32	-2.358327	10.6834133	1.8885785
Sasini	32	-.391234	2.2490808	.3975851
Uchumi	32	553030	2.0931466	.3700195
KQ	32	.322420	2.8435795	.5026786
Serena	32	.035071	1.7154738	.3032558
NMG	32	-.231406	2.0401875	.3606576
BBK	32	-.181395	5.5519735	.9814595
DTB	32	-1.169076	3.5616770	.6296215
KCB	32	-.649614	7.6987092	1.3609524
SCB	32	.320672	4.8187711	.8518464
Bamburi	32	.541277	1.2846049	.2270882
BOC	32	-.121448	3.7191597	.6574608
NIC	32	-.775908	5.8806599	1.0395636
EABL	32	.521487	2.5736540	.4549620
Fire	32	-.293474	3.5878464	.6342476
KPLC	32	-.468695	6.8619864	1.2130393
Total	32	.038422	1.9868842	.3512348
BAT	32	.361952	3.5402529	.6258342

One-Sample Test

	Test Value = 0				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference

					Lower	Upper
Kakuzi	-1.249	31	.221	-2.3583275	-6.210109	1.493454
Sasini	-.984	31	.333	-.3912338	-1.202114	.419646
Uchumi	1.495	31	.145	.5530304	-.201629	1.307690
KQ	.641	31	.526	.3224199	-.702800	1.347640
Serena	.116	31	.909	.0350708	-.583423	.653565
NMG	-.642	31	.526	-.2314062	-.966972	.504160
BBK	-.185	31	.855	-.1813955	-2.183095	1.820304
DTB	-1.857	31	.073	-1.1690762	-2.453198	.115045
KCB	-.477	31	.636	-.6496140	-3.425295	2.126067
SCB	.376	31	.709	.3206718	-1.416680	2.058024
Bamburi	2.384	31	.023	.5412768	.078127	1.004426
BOC	-.185	31	.855	-.1214484	-1.462349	1.219452
NIC	-.746	31	.461	-.7759075	-2.896111	1.344296
EABL	1.146	31	.260	.5214874	-.406414	1.449389
Fire	-.463	31	.647	-.2934736	-1.587030	1.000083
KPLC	-.386	31	.702	-.4686947	-2.942705	2.005315
Total	.109	31	.914	.0384223	-.677926	.754770
BAT	.578	31	.567	.3619519	-.914445	1.638349

MIMS-ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMS	18	-.2192359	.72187088	.17014660

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMS	-1.289	17	.215	-.21923589	-.5782138	.1397421

MIMS-EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	2	63.310551	89.5346401	63.310551
Sasini	2	.380420	.4949055	.3499510
Uchumi	2	2.637084	3.6998434	2.6161843
KQ	2	.344176	3.3916620	2.3982672
Serena	2	-.391696	1.2673533	.8961541
NMG	2	1.273141	1.8198060	1.2867971
BBK	2	-2.176688	5.2177777	3.6895260
DTB	2	-4.140720	2.6648391	1.8843258
KCB	2	1.426521	.3166171	.2238821
SCB	2	.527921	8.8781641	6.2778100
Bamburi	2	.393554	.1455807	.1029411
BOC	2	-1.058231	.0079183	.0055991
NIC	2	.440971	1.4701796	1.0395740
EABL	2	1.357055	.2662155	.1882428
Fire	2	-6.722022	2.6927111	1.9040343

KPLC	2	.923124	1.3269642	.9383054
Total	2	-.307817	.3712854	.2625385
BAT	2	-.037368	.6652494	.4704024

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	1.000	1	.500	63.3105512	-741.1262	867.74737
Sasini	1.087	1	.473	.3804202	-4.066129	4.826970
Uchumi	1.008	1	.497	2.6370844	-30.60468	35.878858
KQ	.144	1	.909	.3441758	-30.12869	30.817050
Serena	-.437	1	.738	-.3916956	-11.77841	10.995022
NMG	.989	1	.503	1.2731406	-15.07716	17.623448
BBK	-.590	1	.661	-2.1766877	-49.05656	44.703185
DTB	-2.197	1	.272	-4.1407196	-28.08334	19.801910
KCB	6.372	1	.099	1.4265209	-1.418171	4.271213
SCB	.084	1	.947	.5279207	-79.23921	80.295060
Bamburi	3.823	1	.163	.3935543	-.914436	1.701545
BOC	-189.000	1	.003	-1.0582307	-1.12937	-.987087
NIC	.424	1	.745	.4409708	-12.76809	13.650011
EABL	7.209	1	.088	1.3570548	-1.034797	3.748906
Fire	-3.530	1	.176	-6.7220220	-30.91507	17.471027
KPLC	.984	1	.505	.9231239	-10.99917	12.845424
Total	-1.172	1	.450	-.3078173	-3.643685	3.028050
BAT	-.079	1	.950	-.0373680	-6.014397	5.939661

MIMS EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSEVENT	18	3.2322	15.15180	3.57131

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMSEVENT	.905	17	.378	3.23222	-4.3026	10.7670

MIMS-POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	33	-1.215212	3.5672112	.6209718
Sasini	33	-1.339768	4.7911337	.8340293
Uchumi	33	-.984460	2.5432200	.4427178
KQ	33	-.393235	3.2938157	.5733797
Serena	33	-.273900	1.4341598	.2496552
NMG	33	-1.360834	3.9698271	.6910582
BBK	33	-.057305	3.4084999	.5933437

KPLC	2	.923124	1.3269642	.9383054
Total	2	-.307817	.3712854	.2625385
BAT	2	-.037368	.6652494	.4704024

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	1.000	1	.500	63.3105512	-741.1262	867.74737
Sasini	1.087	1	.473	.3804202	-4.066129	4.826970
Uchumi	1.008	1	.497	2.6370844	-30.60468	35.878858
KQ	.144	1	.909	.3441758	-30.12869	30.817050
Serena	-.437	1	.738	-.3916956	-11.77841	10.995022
NMG	.989	1	.503	1.2731406	-15.07716	17.623448
BBK	-.590	1	.661	-2.1766877	-49.05656	44.703185
DTB	-2.197	1	.272	-4.1407196	-28.08334	19.801910
KCB	6.372	1	.099	1.4265209	-1.418171	4.271213
SCB	.084	1	.947	.5279207	-79.23921	80.295060
Bamburi	3.823	1	.163	.3935543	-.914436	1.701545
BOC	-189.000	1	.003	-1.0582307	-1.12937	-.987087
NIC	.424	1	.745	.4409708	-12.76809	13.650011
EABL	7.209	1	.088	1.3570548	-1.034797	3.748906
Fire	-3.530	1	.176	-6.7220220	-30.91507	17.471027
KPLC	.984	1	.505	.9231239	-10.99917	12.845424
Total	-1.172	1	.450	-.3078173	-3.643685	3.028050
BAT	-.079	1	.950	-.0373680	-6.014397	5.939661

MIMS EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSEVENT	18	3.2322	15.15180	3.57131

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMSEVENT	.905	17	.378	3.23222	-4.3026	10.7670

MIMS-POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	33	-1.215212	3.5672112	.6209718
Sasini	33	-1.339768	4.7911337	.8340293
Uchumi	33	-.984460	2.5432200	.4427178
KQ	33	-.393235	3.2938157	.5733797
Serena	33	-.273900	1.4341598	.2496552
NMG	33	-1.360834	3.9698271	.6910582
BBK	33	-.057305	3.4084999	.5933437

DTB	33	-.622209	2.1614565	.3762613
KCB	33	.549775	6.6163636	1.1517611
SCB	33	-.059200	5.0522158	.8794779
Bamburi	33	-1.074631	4.0905885	.7120801
BOC	33	-1.295590	4.2145165	.7336532
NIC	33	-1.436910	4.2595221	.7414876
EABL	33	.227762	1.4405840	.2507735
Fire	33	-1.237129	4.1174021	.7167477
KPLC	33	-1.841469	7.2107064	1.2552229
Total	33	-1.497423	4.4584417	.7761151
BAT	33	-1.046544	3.0281484	.5271330

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	-1.957	32	.059	-1.2152122	-2.480090	.049666
Sasini	-1.606	32	.118	-1.3397680	-3.038630	.359094
Uchumi	-2.224	32	.033	-.9844597	-1.886246	-.082673
KQ	-.686	32	.498	-.3932346	-1.561171	.774702
Serena	-1.097	32	.281	-.2739005	-.782431	.234630
NMG	-1.969	32	.058	-1.3608335	-2.768473	.046806
BBK	-.097	32	.924	-.0573046	-1.265906	1.151297
DTB	-1.654	32	.108	-.6222086	-1.388628	.144211
KCB	.477	32	.636	.5497746	-1.796286	2.895835
SCB	-.067	32	.947	-.0592003	-1.850638	1.732238
Bamburi	-1.509	32	.141	-1.0746314	-2.525091	.375828
BOC	-1.766	32	.087	-1.2955900	-2.789993	.198813
NIC	-1.938	32	.062	-1.4369096	-2.947271	.073451
EABL	.908	32	.371	.2277619	-.283047	.738571
Fire	-1.726	32	.094	-1.2371292	-2.697097	.222838
KPLC	-1.467	32	.152	-1.8414688	-4.398274	.715336
Total	-1.929	32	.063	-1.4974235	-3.078318	.083471
BAT	-1.985	32	.056	-1.0465441	-2.120279	.027191

MIMS POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSPOST	18	-.8310	.67724	.15963

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMSPOST	-5.206	17	.000	-.83102	-1.1678	-.4942

APPENDIX IV: LIQUIDITY-ABSOLUTE VOLUME TRADED

AIMS ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
aboum	32	2926.59	9233.358	1632.243
ctrust	32	1228.47	4552.451	804.767
eapack	32	22673.38	84636.047	14961.681
eagads	32	347.97	1315.952	232.630
exp	30	693.67	1386.932	253.218
gwk	32	2015.69	3150.407	556.919
kap	32	18.13	71.366	12.616
lim	32	2054.09	8559.493	1513.119
snews	32	2739.91	6256.219	1105.954

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
aboum	1.793	31	.083	2926.594	-402.39	6255.57
ctrust	1.526	31	.137	1228.469	-412.86	2869.80
eapack	1.515	31	.140	22673.375	-7841.17	53187.92
eagads	1.496	31	.145	347.969	-126.48	822.42
exp	2.739	29	.010	693.667	175.78	1211.56
gwk	3.619	31	.001	2015.688	879.84	3151.53
kap	1.437	31	.161	18.125	-7.61	43.86
lim	1.358	31	.184	2054.094	-1031.93	5140.12
snews	2.477	31	.019	2739.906	484.30	4995.51

AIMS ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMSEST	9	3855.3222	7130.71378	2376.90459

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMSEST	1.622	8	.143	3855.32222	-1625.8296	9336.4740

AIMS EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
aboum	2	3100.00	4384.062	3100.000
ctrust	2	.00	.000(a)	.000
eapack	2	.00	.000(a)	.000
eagads	2	.00	.000(a)	.000
exp	2	500.00	707.107	500.000
gwk	2	1607.00	1777.666	1257.000
kap	2	.00	.000(a)	.000
lim	2	47449.00	21688.379	15336.000

snews	2	10287.50	12427.402	8787.500

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
aboum	1.000	1	.500	3100.000	-36289.23	42489.23
exp	1.000	1	.500	500.000	-5853.10	6853.10
gwk	1.278	1	.423	1607.000	-14364.70	17578.70
lim	3.094	1	.199	47449.000	-147413.36	242311.36
snews	1.171	1	.450	10287.500	-101368.27	121943.27

AIMS-EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMSEVENT	9	6993.7222	15530.10525	5176.70175

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMSEVENT	1.351	8	.214	6993.72222	-4943.7734	18931.2179

AIMS POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
aboum	32	4688.22	10513.002	1858.454
ctrust	33	748.76	1891.670	329.297
eapack	33	1614.33	4433.747	771.816
eagads	33	.00	.000(a)	.000
exp	33	275.52	942.889	164.136
gwk	33	5278.09	9662.486	1682.023
kap	33	17.58	55.398	9.644
lim	33	24152.15	17872.958	3111.283
snews	33	2557.48	5980.927	1041.146

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
aboum	2.523	31	.017	4688.219	897.88	8478.56
ctrust	2.274	32	.030	748.758	78.00	1419.51
eapack	2.092	32	.044	1614.333	42.20	3186.47
exp	1.679	32	.103	275.515	-58.82	609.85
gwk	3.138	32	.004	5278.091	1851.92	8704.26
kap	1.823	32	.078	17.576	-2.07	37.22
lim	7.763	32	.000	24152.152	17814.68	30489.63

snews	2.456	32	.020	2557.485	436.74	4678.23

AIMS POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMSPOST	9	4370.2367	7673.46810	2557.82270

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMSPOST	1.709	8	.126	4370.23667	-1528.1131	10268.5864

MIMS ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
kakuzi	32	9501.81	20339.460	3595.542
sasini	32	9574.75	19148.208	3384.957
uchumi	32	116515.88	145368.950	25697.843
kq	32	559427.34	776820.747	137323.805
ser	32	10037.53	9450.716	1670.666
nmg	32	32527.38	42482.564	7509.927
bbk	32	104539.97	115093.327	20345.818
dtk	32	20668.69	68960.650	12190.636
KCB	32	135170.38	188995.855	33410.063
scb	32	23988.08	39375.705	6960.707
Bamburi	32	100962.00	191163.647	33793.278
boc	32	2756.81	6199.774	1095.976
nic	32	29027.69	27681.841	4893.504
eabl	32	84419.13	104991.652	18560.077
fire	32	27781.66	74119.229	13102.552
kplc	32	45337.94	69136.007	12221.635
total	32	19417.22	60507.978	10696.400
BAT	32	30300.28	40362.514	7135.152

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
kakuzi	2.643	31	.013	9501.813	2168.66	16834.97
sasini	2.829	31	.008	9574.750	2671.08	16478.42
uchumi	4.534	31	.000	116515.875	64104.78	168926.97
kq	4.074	31	.000	559427.344	279353.60	839501.09
ser	6.008	31	.000	10037.531	6630.18	13444.88
nmg	4.331	31	.000	32527.375	17210.78	47843.97
bbk	5.138	31	.000	104539.969	63044.40	146035.54
dtk	1.695	31	.100	20668.688	-4194.28	45531.65
KCB	4.046	31	.000	135170.375	67030.10	203310.65
scb	3.446	31	.002	23988.075	9791.62	38184.53

Bamburi	2.988	31	.005	100962.000	32040.16	169883.84
boc	2.515	31	.017	2756.813	521.56	4992.07
nic	5.932	31	.000	29027.688	19047.32	39008.06
eabl	4.548	31	.000	84419.125	46565.60	122272.65
fire	2.120	31	.042	27781.656	1058.82	54504.49
kplc	3.710	31	.001	45337.938	20411.75	70264.13
total	1.815	31	.079	19417.219	-2398.23	41232.67
BAT	4.247	31	.000	30300.281	15748.04	44852.52

MIMS ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSEST	18	75664.141	127721.98380	30104.360

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMSEST	2.513	17	.022	75664.1411	12149.492	139178.78

MIMS-EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
kakuzi	2	2675.00	1448.155	1024.000
sasini	2	23535.50	23049.560	16298.500
uchumi	2	47449.00	21688.379	15336.000
kq	2	47544.00	2125.563	1503.000
ser	2	24081.50	25470.693	18010.500
nmg	2	15910.000	5410.7811	3826.0000
bbk	2	40246.50	23838.691	16856.500
dtk	2	26676.00	11300.981	7991.000
KCB	2	27101.00	7352.496	5199.000
scb	2	9670.50	13472.506	9526.500
Bamburi	2	52755.50	66611.580	47101.500
boc	2	670.00	169.706	120.000
nic	2	17136.00	4068.692	2877.000
eabl	2	18284.50	7853.835	5553.500
fire	2	2877.00	739.634	523.000
kplc	2	17003.50	19992.030	14136.500
total	2	29563.00	27100.574	19163.000
BAT	2	6763.00	2285.369	1616.000

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
kakuzi	2.612	1	.233	2675.000	-10336.15	15686.15
sasini	1.444	1	.386	23535.500	-183556.58	230627.58
uchumi	3.094	1	.199	47449.000	-147413.36	242311.36

kq	31.633	1	.020	47544.000	28446.57	66641.43
ser	1.337	1	.409	24081.500	-204763.60	252926.60
nmg	4.158	1	.150	15910.0000	-32703.939	64523.939
bbk	2.388	1	.253	40246.500	-173935.64	254428.64
dtk	3.338	1	.185	26676.000	-74859.28	128211.28
KCB	5.213	1	.121	27101.000	-38958.56	93160.56
scb	1.015	1	.495	9670.500	-111375.16	130716.16
Bamburi	1.120	1	.464	52755.500	-545725.80	651236.80
boc	5.583	1	.113	670.000	-854.74	2194.74
nic	5.956	1	.106	17136.000	-19419.75	53691.75
eabl	3.292	1	.188	18284.500	-52279.41	88848.41
fire	5.501	1	.114	2877.000	-3768.35	9522.35
kplc	1.203	1	.442	17003.500	-162617.76	196624.76
total	1.543	1	.366	29563.000	-213926.00	273052.00
BAT	4.185	1	.149	6763.000	-13770.23	27296.23

MIMS EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSEVENT	18	22774.5278	16010.60768	3773.73642

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
MIMSEVENT	6.035	17	.000	22774.527	14812.6399	30736.4157

MIMS POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
kakuzi	33	2150.52	4392.585	764.651
sasini	33	10325.82	13062.954	2273.968
uchumi	33	24152.15	17872.958	3111.283
kq	33	33702.27	21926.122	3816.848
ser	33	13145.76	11820.795	2057.736
nmg	33	20282.48	19687.106	3427.085
bbk	33	130020.27	155003.026	26982.563
dtk	33	9471.21	13813.685	2404.654
KCB	33	35758.58	18014.110	3135.854
scb	33	30576.30	15427.640	2685.607
Bamburi	33	32911.61	74648.605	12994.654
boc	33	10528.55	21794.180	3793.880
nic	33	516631.33	1111947.366	193565.191
eabl	33	18799.18	14976.206	2607.023
fire	33	22377.85	19937.344	3470.646
kplc	33	18696.58	13997.185	2436.597
total	33	10799.61	12311.662	2143.185
BAT	33	17530.76	14263.073	2482.882

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
kakuzi	2.812	32	.008	2150.515	592.97	3708.06
sasini	4.541	32	.000	10325.818	5693.90	14957.74
uchumi	7.763	32	.000	24152.152	17814.68	30489.63
kq	8.830	32	.000	33702.273	25927.61	41476.94
ser	6.388	32	.000	13145.758	8954.29	17337.23
nmg	5.918	32	.000	20282.485	13301.74	27263.23
bbk	4.819	32	.000	130020.273	75058.59	184981.96
dtk	3.939	32	.000	9471.212	4573.09	14369.33
KCB	11.403	32	.000	35758.576	29371.05	42146.10
scb	11.385	32	.000	30576.303	25105.90	36046.71
Bamburi	2.533	32	.016	32911.606	6442.36	59380.85
boc	2.775	32	.009	10528.545	2800.67	18256.43
nic	2.669	32	.012	516631.327	122351.94	910910.72
eabl	7.211	32	.000	18799.182	13488.85	24109.51
fire	6.448	32	.000	22377.848	15308.37	29447.32
kplc	7.673	32	.000	18696.576	13733.39	23659.76
total	5.039	32	.000	10799.606	6434.08	15165.13
BAT	7.061	32	.000	17530.758	12473.29	22588.22

MIMS POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMSPOST	18	53214.490	118911.91631	28027.807

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMSPOST	1.899	17	.075	53214.4905	-5919.012	112347.99

APPENDIX V: LIQUIDITY-TRADING RATIO

AIMS- ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	13	-.0002339	.00070138	.00019453
CTrust	7	.0178571	.04724556	.01785714
EAPack	13	.0021414	.00542950	.00150587
Eagads	3	.0000000	.00000000(a)	.00000000
Express	11	-.0019821	.00316046	.00095292
GWK	24	-.0013938	.00486106	.00099226
Kapchorua	2	.0000000	.00000000(a)	.00000000
Limuru	4	.0000000	.00000000(a)	.00000000
Standard Media	14	.0035436	.01390666	.00371671

a t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Aboum	-1.202	12	.252	-.00023387	-.0006577	.0001900
CTrust	1.000	6	.356	.01785714	-.0258377	.0615520
EAPack	1.422	12	.180	.00214145	-.0011398	.0054225
Express	-2.080	10	.064	-.00198213	-.0041054	.0001411
GWK	-1.405	23	.173	-.00139380	-.0034464	.0006588
Standard Media	.953	13	.358	.00354361	-.0044859	.0115731

AIMS- ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMS EST	9	.0022147	.00610124	.00203375

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
VAR00001	1.089	8	.308	.00221470	-.0024751	.0069045

AIMS-EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	1(a)	.0000000	.	.
CTrust	0(a,b)	.	.	.
EAPack	0(a,b)	.	.	.
Eagads	0(a,b)	.	.	.
Express	1(a)	.0000000	.	.
GWK	2	.0014804	.00209358	.00148038
Kapchorua	0(a,b)	.	.	.
Limuru	2	.0000000	.00000000(c)	.00000000
Standard Media	2	-.0164888	.02334069	.01650436

a t cannot be computed because the sum of caseweights is less than or equal 1.
b t cannot be computed. There are no valid cases for this analysis because all caseweights are not positive.
c t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
GWK	1.000	1	.500	.00148038	-.0173297	.0202905
Standard Media	-.999	1	.500	-.01648877	-.2261966	.1932190

AIMS-EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
AIMS EVENT	5	-.0030017	.00756673	.00338395

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AIMS EVENT	-.887	4	.425	-.00300168	-.0123970	.0063937

AIMS-POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Aboum	14	-.0007224	.00148874	.00039788
CTrust	10	-.0002866	.00114210	.00036116
EAPack	11	.0011387	.00290711	.00087653
Eagads	0(a,b)	.	.	.
Express	5	-.0039335	.00538728	.00240927
GWK	25	.0005143	.00573438	.00114688
Kapchorua	4	-.0034483	.00689655	.00344828
Limuru	33	-.0000351	.00020183	.00003513
Standard Media	12	.0203310	.05481263	.01582304

a t cannot be computed because the sum of caseweights is less than or equal 1.
b t cannot be computed. There are no valid cases for this analysis because all caseweights are not positive.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Aboum	-1.816	13	.093	-.00072238	-.0015820	.0001372
CTrust	-.794	9	.448	-.00028661	-.0011036	.0005304
EAPack	1.299	10	.223	.00113870	-.0008143	.0030917
Express	-1.633	4	.178	-.00393348	-.0106227	.0027557
GWK	.448	24	.658	.00051427	-.0018528	.0028813
Kapchorua	-1.000	3	.391	-.00344828	-.0144222	.0075257
Limuru	-1.000	32	.325	-.00003513	-.0001067	.0000364
Standard Media	1.285	11	.225	.02033103	-.0144953	.0551573

AIMS-POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	8	.0016948	.00774506	.00273829

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
VAR00001	.619	7	.556	.00169476	-.0047803	.0081698

MIMS-ESTIMATION WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	19	.000056	.0011725	.0002690
Sasini	25	-.000114	.0020381	.0004076
Uchumi	32	.000036	.0001555	.0000275
KQ	32	.000009	.0000431	.0000076
Serena	30	.000023	.0004294	.0000784
NMG	32	-.000046	.0003810	.0000674
BBK	32	-.0000010	.00024868	.00004396
DTB	25	-.0003524	.00110294	.00022059
KCB	32	-.000130	.001'0258	.0001813
SCB	32	-.000056	.0004531	.0000801
Bamburi	32	.000137	.0004376	.0000773
BOC	14	.002548	.0108785	.0029074
NIC	32	-.000464	.001'9612	.0003467
EABL	32	.0000201	.000'6440	.00002906

Fire	30	-.0003627	.00107369	.00019603
KPLC	32	-.0000434	.00034168	.00006040
Total	32	.0001409	.00095552	.00016891
BAT	32	-.0009562	.00639336	.00113020

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	.209	18	.837	.0000561	-.000509	.000621
Sasini	-.281	24	.781	-.0001144	-.000956	.000727
Uchumi	1.302	31	.202	.0000358	-.000020	.000092
KQ	1.198	31	.240	.0000091	-.000006	.000025
Serena	.291	29	.773	.0000229	-.000138	.000183
NMG	-.681	31	.501	-.0000458	-.000183	.000092
BBK	-.024	31	.981	-.00000104	-.0000907	.0000886
DTB	-1.597	24	.123	-.00035236	-.0008076	.0001029
KCB	-.716	31	.479	-.0001298	-.000500	.000240
SCB	-.702	31	.488	-.0000562	-.000220	.000107
Bamburi	1.772	31	.086	.0001371	-.000021	.000295
BOC	.876	13	.397	.0025475	-.003734	.008829
NIC	-1.340	31	.190	-.0004644	-.001172	.000243
EABL	.693	31	.493	.00002014	-.0000391	.0000794
Fire	-1.850	29	.074	-.00036272	-.0007636	.0000382
KPLC	-.718	31	.478	-.00004335	-.0001665	.0000798
Total	.834	31	.410	.00014094	-.0002036	.0004854
BAT	-.846	31	.404	-.00095621	-.0032613	.0013488

MIMS-ESTIMATION WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	18	.0000247	.00068375	.00016116

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
VAR00001	.153	17	.880	.00002468	-.0003153	.0003647

MIMS-EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	2	.038347	.0542306	.0383468
Sasini	2	.000011	.0000100	.0000071
Uchumi	2	.000082	.0001154	.0000816
KQ	2	.000006	.0000711	.0000503
Serena	2	.000026	.0000804	.0000568
NMG	2	.000106	.0001503	.0001063
BBK	2	-.0001122	.00019608	.00013865
DTB	2	-.0001938	.00018199	.00012868
KCB	2	.000053	.0000027	.0000019
SCB	2	-.019788	.0284853	.0201422
Bamburi	2	.000045	.0000600	.0000425
BOC	2	-.001630	.0004011	.0002836

NIC	2	.000037	.0000946	.0000669
EABL	2	.0000852	.00005116	.00003617
Fire	2	-.0022919	.00034673	.00024518
KPLC	2	.0000272	.00004601	.00003254
Total	2	-.0000279	.00003812	.00002696
BAT	2	.0000118	.00010234	.00007237

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	1.000	1	.500	.0383468	-.448895	.525589
Sasini	1.596	1	.356	.0000113	-.000078	.000101
Uchumi	1.004	1	.499	.0000820	-.000955	.001119
KQ	.112	1	.929	.0000057	-.000633	.000644
Serena	.462	1	.725	.0000262	-.000696	.000749
NMG	.993	1	.502	.0001056	-.001245	.001456
BBK	-.809	1	.567	-.00011215	-.0018738	.0016495
DTB	-1.506	1	.373	-.00019377	-.0018288	.0014413
KCB	27.794	1	.023	.0000530	.000029	.000077
SCB	-.982	1	.506	-.0197876	-.275718	.236143
Bamburi	1.069	1	.479	.0000454	-.000494	.000585
BOC	-5.748	1	.110	-.0016302	-.005234	.001974
NIC	.553	1	.679	.0000370	-.000813	.000887
EABL	2.355	1	.256	.00008521	-.0003744	.0005448
Fire	-9.348	1	.068	-.00229190	-.0054072	.0008234
KPLC	.837	1	.556	.00002724	-.0003862	.0004406
Total	-1.034	1	.489	-.00002789	-.0003704	.0003146
BAT	.163	1	.897	.00001177	-.0009077	.0009313

MIMS-EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMS-EVENT	18	.0008219	.01045408	.00246405

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMS-EVENT	334	17	743	.00082186	-.0043768	.0060205

MIMS-POST EVENT WINDOW

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Kakuzi	15	-.0027885	.00706139	.00182324
Sasini	26	-.0000470	.00332807	.00065269
Uchumi	33	-.0001033	.00047588	.00008284
KQ	33	-.0001006	.00052411	.00009124
Serena	33	-.0000454	.00023771	.00004138
NMG	33	-.0004719	.00160317	.00027908
BBK	33	-.0000168	.00007516	.00001308
DTB	29	-.0012857	.01145342	.00212685
KCB	33	.0000335	.00033947	.00005909
SCB	33	.0000320	.00032926	.00005732

Bamburi	29	-.0006551	.00435384	.00080849
BOC	21	.0001441	.00328982	.00071790
NIC	33	-.0000815	.00032031	.00005576
EABL	33	.0000641	.00019298	.00003359
Fire	33	-.0000226	.00241663	.00042068
KPLC	33	-.0005546	.00167766	.00029204
Total	31	-.0017618	.00667322	.00119855
BAT	33	-.0006782	.00240160	.00041808

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Kakuzi	-1.528	14	.149	-.00278647	-.0066969	.0011240
Sasini	-.072	25	.943	-.00004699	-.0013912	.0012973
Uchumi	-1.247	32	.221	-.00010329	-.0002720	.0000654
KQ	-1.102	32	.279	-.00010057	-.0002864	.0000853
Serena	-1.097	32	.281	-.00004539	-.0001297	.0000389
NMG	-1.691	32	.101	-.00047195	-.0010404	.0000965
BBK	-1.287	32	.207	-.00001684	-.0000435	.0000098
DTB	-.605	28	.550	-.00128572	-.0056424	.0030709
KCB	.567	32	.575	.00003348	-.0000869	.0001538
SCB	.558	32	.581	.00003198	-.0000848	.0001487
Bamburi	-.810	28	.425	-.00065507	-.0023112	.0010010
BOC	.201	20	.843	.00014412	-.0013534	.0016416
NIC	-1.462	32	.154	-.00008151	-.0001951	.0000321
EABL	1.910	32	.065	.00006415	-.0000043	.0001326
Fire	-.054	32	.957	-.00002264	-.0008795	.0008343
KPLC	-1.899	32	.067	-.00055461	-.0011495	.0000403
Total	-1.470	30	.152	-.00176184	-.0042096	.0006859
BAT	-1.617	32	.116	-.00067617	-.0015277	.0001754

MIMS-POST EVENT WINDOW SUMMARY

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
MIMS-POST	18	-.0004631	.00077223	.00018202

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MIMS-POST	-2.544	17	.021	-.00046307	-.0008471	-.0000790