

**MARKET REACTION TO ANNOUNCEMENT OF CROSS-BORDER LISTING
FOR COMPANIES QUOTED AT THE NAIROBI STOCK EXCHANGE**

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DECLARATION

I hereby declare that the presented research project is my original work and has never been presented either in whole or in part to any other examining body for the award of certificates, diploma or degree.

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And above all I also thank the Almighty God for the strength and guidance in everything I do in my life.

DEDICATION

This study is dedicated to my loving wife Sarah, my children Brian, Bancy and Billy for there understanding and support during my entire study period. You have always encouraged and cheered me up even when my strength is low .Your continued support and understanding have always given me more motivation ,energy and determination to face each day with courage.

ABSTRACT

Stock market behavior is very crucial in shares and other stock returns predictability. Kenyan capital market has become more dynamic in the recent past and the Kenyan population has become more knowledgeable and informed. This is seen, more so, with the recent trend towards cross-listing which has seen 5 companies doing 10 cross-listings in Uganda, Tanzania and Rwanda Stock Exchange. However, little is known about how the Kenyan market reacts to cross-border listing announcements; a gap which this study sought to establish by analyzing the market reaction to announcement of cross-border listing for companies quoted at the NSE.

The event study was conducted by surveying all the companies that had announced cross-border listing which were 5 in number but had done an aggregate of 10 cross-border listings in Uganda, Tanzania and Rwanda Stock Exchange. The study collected secondary data on daily stock prices of cross listed shares and 20-share index for 61 day event window. The study used market model to analyze the abnormal returns, cumulative abnormal return and the security return variability following the announcement of cross border listing.

The study found that the market reacts negatively to announcements of cross-border listings though the reaction is infinitesimal which pointed at imperfect market efficiency in the semi-strong form. The study also found that the market do not look at the stock exchange in which the particular share cross listed since the market reaction followed a similar pattern

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LIST OF ACRONYMS/ABBREVIATIONS

CAAR	CUMULATIVE AVERAGE ABNORMAL RETURN
CAPM	CAPITAL ASSET PRICING MODEL
CBI	CROSS- BORDER INITIATIVE
CBK	CENTRAL BANK OF KENYA
CBL	CROSS-BORDER LISTING
CEO	CHIEF EXECUTIVE OFFICER
CMA	CAPITAL MARKET AUTHORITY
COYA	COMPANY OF THE YEAR AWARD
DSE	DAR -ES SALAAM STOCK EXCHANGE
EMH	EFFICIENT MARKET HYPOTHESIS
IFC	INTERNATIONAL FINANCIAL CORPORATION
IMF	INTERNATIONAL MONETARY FUND
IPOS	INITIAL PUBLIC OFFERS
MIMS	MAIN INVESTMENTS MARKET SEGMENT
MMD	MODIFIED MARKET MODEL
NSE	NAIROBI STOCK EXCHANGE
OTC	OVER THE COUNTER
OTC	OVER-THE- COUNTER
USE	UGANDA STOCK EXCHANGE

CHAPTER ONE

INTRODUCTION

Apart from the background, the statement, the objective and the importance of the study, the chapters started by highlighting about the Nairobi Stock Exchange and its mandate and also introduce the meaning of cross border listing announcements and the stock market reaction.

1.1 Background of the Study

A key theme in restructuring economies in the developing world is opening stock markets to foreign portfolio investment. This can be accomplished by permitting foreign investors to enter the local stock market directly or by allowing local assets to trade in overseas stock markets. In theory, this permits developing economy firms to draw from the global pool of capital to undertake useful investments that generate profits and employment. Furthermore, the scrutiny of foreign investors, foreign equity analysts, and foreign stock listing standards can help resolve agency problems, effectively transmitting higher quality reporting and governance standards to developing-country firms (Stultz, 1999).

1.1.1 Nairobi Stock Exchange

The Nairobi Stock Exchange was constituted 1954 as a voluntary association of stockbrokers registered under the Societies Act. Though it started dealing in shares and stocks in the 1920's when the country was still a British colony, IFC/CBK study of 1984, "Development of Money and Capital Markets in Kenya" became a blueprint for structural reforms in the financial markets which culminated in the formation of a regulatory body, The Capital Markets Authority (CMA), in 1989. The overall objective of the CMA is to

assist in the creation of an environment conducive for the growth and development of the country's capital markets. Nairobi Stock Exchange (NSE) is a capital market that enables buying and selling of stocks. Its operations is guided by rules and regulations formulated by CMA (Nairobi Stock Exchange, 2008).

1.1.2 Market Reaction

Market reaction to the cross border listing announcements (the events) will be tested to determine if the Average Abnormal Return will be statistically different from zero. And if not, to what percentage does it differ from zero (Miller, 1999).

1.1.3 Cross Border Listing Announcement

Cross Border Listing (CBL) is where a company's extend it listing in a stock exchange of a country that is different from that of a company's domicile .In our case, companies whose parent company was incorporated in Kenya and is quoted in the NSE. This applies where the company has cross listed its stock either in the Uganda, Tanzania and other neighboring countries' stock exchanges. The CBL announcement is the date the company communicate to the investors through the media example the newspaper through the official launch (Karolyi, 2006).

Kenya as a country has witnessed significant internal and regional capital market development and growth. This has enabled some of the Kenyan companies to expand their market both locally and also regionally as strategy to increase both capital and income base. Secondly as part of the process to create, increase and maintained shareholders wealth through diversified risks and returns. Also acts as a solution towards adaptation to the drastic changes, competition and challenges in the operating investment environment.

The existing economic, political, social, technological and legal cooperation in addition to other regional integrations advocated for instance through East Africa Community (EAC), have played a crucial role in creating an enabling environment for investments to grow and succeed. The principal investment component of financial sector development efforts in the EAC is the expansion of capital markets with the objective of developing long-term debt and equity capital for private sector. Kenya, Uganda, Tanzania and Rwanda have already taken concrete steps towards effective financial and capital markets integration among stock exchanges (Addo, 2007)

The integration process involves eliminating barriers to cross- border investments and differential treatment of foreign treatment of foreign investors. It is achieved through harmonizing national policies, laws and institutions. The revolutions in the transportation and communication have also contributed to increased competition including varied financial markets. The capabilities of Information Communication and Technology have played a big role by enabling information flow and innovations in the market. In particular, investors and managers have been able to effectively and efficiently trade and diversify their portfolios for example in the cross listed companies (IMF, 2005).

Some of the security traders use market information for speculative purposes. The degree of speculation will always depend on how efficient the market is. Most of the individual investors who buy and sell securities do so under assumption that the securities they are buying are worth more than the price they are paying and the securities they are selling are worth less than the actual selling price (Kuria, 2007).

One of the key areas of research over years is the behavior of security prices under the theory of Efficient Market Hypothesis. The studies is motivated by the fact that investors are always keen on stock behavior as it provides information which enables them to make informed decisions on which shares to buy, to hold or to sell in order to maximize their returns and minimize risk . Market efficiency depends on the ability of traders to devote time and resources in making investment decisions aimed at finding investment strategies that yield most returns (Osei, 1998).

An efficient capital market is a market that is efficient in processing information. "In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future". In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value (Fama, 1965).

The debate about efficient markets has resulted in hundreds and thousands of empirical studies both locally and internationally in an attempt to determine whether specific markets are in fact "efficient" and if so to what degree. Researchers have also uncovered numerous other stock market anomalies that seem to contradict the efficient market hypothesis. Among the many anomalies is the Cross Border Listing event which may not have been adequately studied locally considering the history regional financial and capital integration in the region (Kuria, 2007). The announcement of cross border listing may be good news to investors and are expected to react to future or past event and in the process affects stock prices in line with efficient market hypothesis (Karolyi, 2006).

The efficient market theory has been very fertile ground of study where Researchers have uncovered numerous stock market anomalies in contradictions to the efficient market hypothesis. The search for anomalies is effectively the search for systems or patterns that can be used to outperform passive or buy-and-hold strategies. In this case, an exchange listing is assumed to increase the stock price due to perceived prestige and liquidity. EMH (Onyango, 2004)

Cross Border Listing (CBL) has become important in the last decade as some companies have become international in their orientation. The announcement of cross border listing may be good news to investors and are expected to react positively and in process cause abnormal performance or behavior in the market. There is need to test local market efficiency level in order to determine reactions to news. (Karolyi, 1998)

1.2 Statement of the Problem

Stock market behavior is very crucial in shares and other stock returns predictability. As observed above, the Kenyan capital market has become more dynamic in the recent past and the Kenyan population has become more knowledgeable and informed. This means as investors, Kenyan desire to make informed investment decisions and will need reliable market information. The search for market information has provided a very fertile ground for research in an effort to validate assertions brought forward by efficient market theory.

It is not in doubt that several studies have been done on the various aspects of efficient market theory, including the cross border listing in developed capital market for example in the studies by Cootner (1964), Samuelson (1965), Fama (1965-70) and Roberts (1967). The studies tried to close the knowledge gap as to whether stock prices follow the random

walk or not and the expectation of an efficient market; but the same created a room for further studies due to the drastic, uniqueness and dynamic changes in the different existing markets which may range from weak to strong form tests results (Sewell, 2008).

The developed markets studies were conducted in developed nations whose environment differs from that of developing nations. Developing nations tend to have less organized and structured capital markets activity and are characterized by lower levels of savings and investments and underdeveloped financial systems unlike developed ones which have a higher level of informational efficiency (Kuria, 2007).

Local studies have been done to test various stock market anomalies including Ondigo(1995), Odera (2001), Onyango(2004), Mbugua (2004), Kioo(2006) Kuria(2007) and Ndirangu(2008) which tested various information content ranging from annual reports, earnings announcements, cash dividend announcement, listing announcement and Announcements Company of the Year Awards (COYA). However, little is known about how the Kenyan market reacts to cross-border listing announcements; a gap which this study sought to establish by analyzing the market reaction to announcement of cross-border listing for companies quoted at the NSE.

1.3 Objectives of the study

The objective of the study was to establish whether the announcements for cross-border listing caused market reaction for the companies quoted at the Nairobi Stock Exchange.

1.4 Importance of the study

First, Policy makers can gain knowledge on effects and benefits of cross-border listing both to the national and regional economy. Hence they can set the stage for regional cross-listings in order to harness the numerous related benefits. Secondly, the study is very valuable to all the institutions targeting cross listing as an investment strategy.

Thirdly, the researchers and scholars can use the findings as a basis for reference and further studies. Last but not least, in theory and practice the study plays a crucial role, as it endeavors to be part of the contribution to EMH theory. Secondly, it determines the extent of how Cross Border Listing contributes in the regional and Continental Capital Market. Thirdly, the study can establish if the existing investment environment in the region encourages or motivate more cross listing.

CHAPTER TWO

LITERATURE REVIEW

The chapter highlights the three relevant theories for the study that is, the EMH theory, the random walk theory and portfolio theory. The anomalies in the stock market, past empirical event studies on market efficiency including the cross border listing and lastly the conclusions.

2.1 Efficient Market Hypothesis.

The Efficient Market Hypothesis or EMH rose to academic prominence in the 1960s through the work of Cootner (1964), Samuelson (1965), Fama (1965- 70), Roberts (1967) and many others. Given a market and a set of information about that market and the securities traded in it, the EMH asserts that market prices are properly priced relative to that information. The key consequence is that there is no way to use that information to “beat the market” i.e. no way to achieve excess risk adjusted expected return. Any future realized “superior” performance would be wholly due to the unpredictable chance fluctuations (Lo, 1997)

Event study aim to determine whether there is an ‘abnormal’ stock price effect associated with an unanticipated event. From this cross border listing event the researcher can infer the significance of the event” (McWilliams & Siegel, 1997). The assumption under the for this event study is that; First and foremost Markets are efficient Stock reflects all relevant information (Fama et al. 1969). Secondly, the cross border list as an event is an unanticipated thus any Abnormal returns are result of reaction (DosSantos et

al,1993).lastly there is No confounding effects of other factors in the market (McWilliams & Siegel ,1997)

An efficient stock market sector will have the expertise, the institutions and the means to prioritize 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 (NSE, Market Fact file)

The introduction of the term “efficient market” is usually attributed to Eugene Fama, in his 1965 paper, “Random Walks in Stock Market Prices,” published in the Financial Analysts Journal, Fama cites, among other things, his earlier study of serial correlations in daily price changes of 30 stocks that comprise the Dow Jones Industrial Average index (“The Behavior of Stock Market Prices”). He concluded that daily changes had a very small positive correlation, approaching zero for practical purposes. The stock market seemed to work in a way that allowed all information reflected in past prices to be incorporated into the current price. In other words, the market efficiently processed the information contained in past prices (Kiiio, 2005).

The description of Efficient Market according to Fama is very similar to that of a perfectly competitive market out of a microeconomics textbook. And in a perfectly competitive market, every seller earns a normal profit, i.e., the amount of profit sufficient to stay in business, but insufficient to attract a competitor. If we assume that this is true of the stock market, it follows that any new information that becomes available to the market will be

very quickly reflected in the prices. Otherwise, there will be opportunities for abnormal returns. In Fama's own words, in an efficient market, on the average, competition will cause the full effects of new information on intrinsic values to be reflected "instantaneously" in actual prices (Fama & French, 1995).

There are three forms of the efficient market hypothesis. First, weak-form of market efficiency asserts that all past market prices and data are fully reflected in securities prices. In other words, technical analysis is of no use. Secondly, semi-strong form of market efficiency asserts that all publicly available information is fully reflected in securities prices. In other words, fundamental analysis is of no use. Lastly, strong form of market efficiency asserts that all information is fully reflected in securities prices. In other words, even insider information is of no use. Securities markets are flooded with thousands of intelligent, well-paid, and well-educated investors seeking under and over-valued securities to buy and sell. The more participants and the faster the dissemination of information, the more efficient a market should be (Onyango, 2004).

2.2 Random Walk Theory

Karl Pearson, a professor and Fellow of the Royal Society, introduced the term random Walk in the letters pages of Nature. (Pearson 1905).It explains that the drunk can be expected to stagger in a totally unpredictable and random fashion; he is likely to end up closer to where he had been left than to any other point. In finance, this analogy has been applied to a series whose successive returns are serially independent. In early 1950s, researchers were for the first time, able to use electronic computers to study the behavior of lengthy price series. The assumption of the economists was that one could "analyst an

economic time series by extracting from it a long term movement or trend for a separate study and scrutinizing the residual portion for short term oscillary movements and random fluctuations” (Kendall, 1953)

Despite the emerging evidence on randomness of stock price changes, there were occasional instances of anomalous price behavior, where certain series appeared to follow predictable paths. This include a subset of the stock and commodity price series (Cowles, 1937) and (Kendall, 1953)

2.3 Portfolio Theory

While there was evidence on the performance of security analyst, until n1960s there was a gap in knowledge about the returns achieved by professional portfolio managers. With the development of Capital Asset Pricing (CAPM) model by Treylor (1961) and Sharpe (1964), it became clear that CAPM could provide a bench mark for performance analysis. The CAPM always used since it incorporate the market risk free rate and at the same time the risk premium for computing the expected return of the security (Jessen, 1968)

2.4 Anomalies in the Stock Market

The persistent of some of these patterns of behavior suggests that a problem in at least some of these anomalies lies in the models being used for risk and return rather than in the behavior of financial markets. Observable firm characteristics include small firm affect, market value of equity. Price earnings ratio and price book values ratios. Others include technological anomalies, calendar anomalies for example Monday effect affects years ending in five, IPO’s offerings, buy-backs and insider transactions also affect the market behavior of share prices (Onyango, 2004).

Based on Firm characteristics Small Firm Effect: Studies consistently found out that smaller firm (market value of equity) earn higher returns than larger firms of equivalent risk (defined in terms of market beta). Price Earnings Ratio; argued that stocks with low price earnings ratio more likely to be undervalued and earn excess returns. For example, Ben Graham in his investment classic uses “The Intelligent Investor” uses low price earnings ratio as screen for finding undervalued stocks.

Price book Value Ratios; there exists a negative relationship between returns and price book values ratios. Fama and French (1995) show that firms with high book to market equity ratios have persistently low earnings, higher financial leverage, more earnings uncertainty and more likely to cut dividends compared to those with low book to market equity ratios.

Calendar anomalies: January Effect; Studies done have revealed that strong differences in returns behavior across the months of the year. Returns in January have significantly higher returns than in any other month of the year. However, did not find any significant seasonal anomalies in the NSE. Turn of the Month Effect; According to Hansel & Ziemba (1996) stocks have consistently shown higher returns on the last day and first four days of the month. They presented the theory that effects result from cash flows at the end of the month for example salaries and interest payments. They asserted that by exploiting the turn of the month effect could lead to abnormal returns (Kingori, 1995).

The Weekend/ Monday Effect; Several studies showed that returns on Monday worse than any other day of the week. The weekend effect is fairly strong in developed markets.

However in emerging markets and developing markets it may not always apply but reveal that the NSE does not exhibit the pattern (Kiiio, 2005).

Other Anomalies; IPO's, Seasonal Equity Offerings and stock Buy-Outs; Numerous studies have concluded that IPO's in aggregate underperform the market. Insider Transactions; Insider buying considered by many to be a signal that the insiders believe the stock is significantly undervalued and their belief is that the stock will outperform accordingly(Onyango ,2004).

The Weather Effect; It has been observed that sunshine puts people in a good mood. People in good mood make optimistic choices and judgments'. Saunders (1993), shows that New York Exchange Market index tends to be negative when it is cloudy. In a study,) analyze data for 26 countries from 1982-1997 and found out that stock markets returns are positively correlated with sunshine in almost all of the countries studied. They also found that snow and rain have no predictive power (Hirsheifer & Shumway, 2001).

2.5 Event Studies on Stock Market Efficiency

According to Onyango (2004), various event studies conducted on market efficiency over the years have mixed results; Stock splits: It is ordinarily expected that when stock are split, they increase in value due to increased demand for lowly prices splits. Studies however reveal no change in value. Majority of results of studies attribute no short run or long run increase impact on security return because of stock splits.

Exchange Listings; The decision to become listed in the stock exchange such listing expected to increase market liquidity of stock and add to its prestige. Studies indicate no long run effect on value or risk. They however give some evidence of short run profit

opportunity from public information which supports semi strong form EMH. The conclusion is that when the shares of a company are in the hands of both domestic investors and foreign investors the influence of shocks in the economy and Industry is decreased, suggesting that the share price becomes more stable with a broader Share base (Doidge, 2004).

Corporate events; Events like change in top management for example the CEO, sponsorship, social responsibility activities affect stock prices depending on the underlying economic benefit of the event. Assertion is that the information concerning subsequent performance that is contained in the sign of deviations of reported quarterly earnings from expected quarterly earnings appear to be reflected in security prices by the end of the announcement week evidence that is consistent with the semi strong form of EMH (Onyango, 2004).

2.6 Some of the Empirical Studies

Miller (1996) had examined a sample of a smaller firms traded over the counter (OTC) between 1985 and 1995. He reports that abnormal returns around the announcement dates were significantly positive at 1.21 % while no market reaction around the cross listing date was found. The difference between announcement and listing date .Abnormal return were much smaller economically than the difference observed by Switzer in 1997 for Canadian listing.

Ondigo (1995), examined information content of 18 “blue chip” companies quoted in the NSE in the period 1990-1994. The study revealed that the annual reports and accounts of the sampled firms do not have statistically significant information content. He concluded

that it will be futile for investors to spend a lot of time and effort in analyzing both annual reports and accounts because the content is already captured through more timely media which includes interim reports, dividends, bonuses and individual companies releases. The study concluded that as far as the semi strong model of EMH is concern, the study does not provide any evidence and the study was inconclusive.

Mbugua (2004) in his research examined the impact of stock dividend on stock returns on 24 companies which issue stock dividend/stock bonus. The results indicate that the stock dividend announcements have an impact on stock return. The result also indicated that the size of stock dividends have an effect on stock returns. On the other hand earnings announcements are fully impounded in stock prices prior to or almost instantaneously at the time of announcements.

Onyango (2004) in his study covered 16 companies out of a population of 48 listed companies at NSE, covering period 1998-2003. The study concluded that the earnings announcements contain relevant information to which are fully impounded in stock prices prior to or almost instantaneously at the time of announcement. Secondary evidence resulting from the study is that NSE shows the presence of semi strong model of EMH. He suggested further research on information content to support his conclusion.

2.7 Cross Border Listing

Cross border listings can help the company raise more capital by targeting new shareholders. However not all cross border listing are accompanied by share placements as this may affect liquidity and share price. Publicly-listed foreign corporations would therefore undertake to list on overseas exchanges for a variety of reasons; to boost its

status as a truly regional player, raise more Capital through debt or equity, to increase trading volume, to improve shareholder relations, to enhance its visibility among overseas investors and consumers and to tap into retail and institutional funds and benefit from changing regional attitudes toward equity investing (Karolyi, 2006).

IMF study titled “The Cross-Border Initiative in Eastern and Southern Africa” observed that the Cross-Border Initiative (CBI) comprises a common policy framework developed by fourteen participating countries in Eastern and Southern Africa and the Indian Ocean, with the support of four co-sponsors; the International Monetary Fund, the World Bank, the European Union, and the African Development Bank. The participants included Kenya, Rwanda, Tanzania and Uganda. The policy framework aims to facilitate cross-border economic activity by eliminating barriers to the flow of goods, services, labor, and capital (IMF, 2005).

Another major objective of the CBI was identified by the study to involved reforming the regulatory environment for direct investments, and the progressive harmonization of the structure of investment incentives. In regard to the regulatory environment, participating countries agreed to simplify and codify all investment-related regulatory provisions into a single published document that would be widely available. Other specific measures called for participants to conclude avoidance of double taxation agreements on a bilateral basis; authorize the cross-listing of stocks from other exchanges in the region; and expedite the processing of residence and work permits, and relax visa requirements for investors (IMF, 2005).

The Advantages of cross-border listings include an enlarged investor base, increased marketability of firm's securities enhanced local market trading for shares, and the opportunity to raise new capital. The primary objective of cross-listing is the financial goal of reducing the cost of the firm's equity. Secondly it contributes towards strategic advantages related to enhancing firm's prestige, increasing the visibility of products, linkages with product market sales or the ability to start incentive compensation plan for managers of a foreign subsidiary integrated. Also it will get better local press coverage, and become more familiar with the local financial community in order to raise working capital locally. If barriers exist, however, a firm's share value may be affected by the cross listing announcement (Karolyi, 1998).

Other Researchers have wondered why firms are willing to issue stocks outside their home markets for years. Early research on cross-listings have suggested that the net benefits of overseas issuance, such as overcoming barriers of cross-border market segmentations (Alexander et al., 1987), lower cost of capital (Errunza & Miller, 2000), and increasing liquidity (Tinic & West, 1974) create incentives to attract firms issuing equity overseas. Recently, several studies have argued that the reward of cross-listing programs could be derived from the improvement of corporate governance. (Stulz, 1999)

Regional integration has been proposed in the literature as a solution to stock market development in smaller emerging countries. Proponents of this approach have argued that regional integration can bring greater efficiency, synergies, and economies of scale; attract the foreign flow of funds; foster risk sharing and portfolio diversification; act as an impetus to financial sector reforms, thereby broadening the competitiveness of regional

financial systems and minimizing the risks of financial instability; facilitate capital market development; and lead to economic growth (Karolyi, 2006).

Apart from providing the avenue for cross-border trading in stocks, the home firm and country of primary listing enjoy a number of benefits, including one greater access to lower cost equity finance from a wider investor base; secondly enhanced business reputations through openness and more stringent financial disclosure; thirdly a reduction in transaction costs for investors through gains in market liquidity as a result of cross-listings; fourthly mitigation of market segmentation through a reduction in barriers to foreign investors that arise from regulation and lack of information; and last but not least addressing of information asymmetries and enhanced corporate governance

2.8 Conclusions

Cross-border listing is beneficial for the firm and country of secondary listing. In addition to Increasing stock market liquidity, cross-listing also provide an avenue for portfolio diversification for a wider investor base, secondly improves the employment level through gains from the expansion of operations in the country of secondary listing; thirdly enhances both the business reputation of the cross-listed firm and other national listed firms; fourthly reduces spreads on interest rates and debt securities by increasing the number of investors in the stock market, thereby reducing the concentration of investors in the money market; fifthly increases the availability and accuracy of public information and lowers information asymmetries; and lastly Enhances corporate governance, and market transparency and quality(Karolyi, 2006).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines research design and methodology followed in the entire process that the researcher used in regards to the research design, population, sampling frame and finally the analysis model used for the study.

3.2 Research Design

In its application of event study methodology, this study followed the approach outlined in MacKinlay (1997), which consisted of the following steps: first, defining the event and identify the event window; secondly, countries, stock markets and firms included; thirdly, selecting the non-event window to measure the normal return; fourthly estimating the abnormal Return; and lastly, testing whether the abnormal return is statistically significant.

A survey of all the companies listed on NSE that have made cross border listing announcement was done. A survey was preferred because the firms with different characteristics have carried out cross border listing announcements hence an individual firm biases was eliminated.

3.2 Population of the Study

The population of interest in this study consisted of the five (5) companies that have made successful Cross Border Listing announcements since 2001 up to August 2010 and were listed at NSE. This implied the researcher carried out a census survey of cross listing events by East African Breweries Ltd, Kenya Airways, Jubilee Insurance Ltd, Equity

Bank Ltd and Kenya Commercial Bank. The NSE was considered ideal for carrying out this study due to the availability, accessibility and reliability of data.

3.3 Data Collection Method

This study was purely facilitated by use of secondary data from Nairobi Stock Exchange, Capital Market Authority and the respective company's journals and annual reports. Also other reliable sources such as daily newspapers were used where necessary. The data comprised of daily stock prices and the NSE-20 Share Market Index for 30 days prior to and 30 days after the cross border listing announcement by the identified company.

3.4 Data Analysis

The use of Event study allowed determination whether stock prices instantaneously and fully incorporated new information. The event study tool for empirical research in finance due to ease of use, clarity of purpose, flexibility and absence of confounding influences (Meggin Son ,1997)

This study followed the approach outlined in MacKinlay (1997), which consists of the following steps: first, collecting the companies that had made CBL announcements (the event); secondly, designating the announcement date (as per newspaper or the launch) zero; thirdly, defining the 61 days period of study (the event window); fourthly, computing the firm's returns of each day studied. Fifthly, obtaining the market portfolio (NSE 20 index was used). Sixthly, computing the abnormal returns for each firm (Actual return less expected or market return). Seventhly, calculating the Average Abnormal Return (AAR) for each day for all the firms in the study. Lastly, testing whether the AAR

observed is statistically different from zero (t-statistics was used on confidence level of 95%).

The announcement date of the event (t) was designated 0. The event window was the 61 days (30 days before announcement and 30 days after announcement plus the event day t0). The major assumption is that the period outside the event window was not expected to have any influence on the stock returns.

The change was measured as a percentage of the difference of the opening price and the closing price as a fraction of the opening price. The normal return was estimated using Modified Market Model (MMD). The benchmark adjusted initial return (Abnormal Initial return on a share denoted as AIR_i is define as follows;

$$AR_{jt} = R_{jt} - E(R_{jt}) = (P_{i,t} - P_{i,t-1}) / P_{i,t-1} - (P_{m,t} - P_{m,t-1}) / P_{m,t-1}$$

Where;

AR_{jt} Is the expected or abnormal returns attributable to the CBL announcement

$P_{i,t}$ denotes the closing price at the day of the CBL announcement

$P_{i,t-1}$ Is the opening price

$P_{m,t}$ denotes the closing price of the benchmark index on the first trading day

$P_{m,t-1}$ Is the previous days closing price of the benchmark index.

Abnormal returns for the event period (-30, 30) days around the announcement are estimated using a Modified Market Model:

$$AR_{i,t} = R_{i,t} - R_{m,t},$$

Where $AR_{i,t}$ - abnormal returns of company i on day t ; $R_{i,t}$ - the return of company i on day t and $R_{m,t}$ - market return on day t .

The cumulative abnormal returns (CARs) are calculated as the sum of abnormal returns of company i for the event window:

$$CAR_{i,t} = \sum AR_{i,t}$$

Abnormal Return (CAR)

First compute the Abnormal Return (AR)

$$AR_{it} = R_{it} - E(R_{it})$$

Cumulative Abnormal Return (CAR)

$$CAR_i = \sum_1^t AR_{it}$$

The individual daily AR for the individual firms was examined to determine whether the event produces returns that are different from the returns that would be expected. Cumulative effect may be present and observable and therefore cumulative abnormal returns were computed by summing daily abnormal returns. The $CAR_t = \sum AR_t$ from time $t=-30$ to $t=+30$.

- Mean Abnormal Return (MAR)

$$MAR = \frac{\sum_1^n CAR_i}{n}$$

Where i is the income at time t and n is the number of times or frequency. This involved averaging the individual share responses for all the companies included in the sample to draw an overall inference about the market reaction.

The individual daily abnormal firm's returns were averaged as Mean Abnormal Return (MAR), which were examined to determine whether the CBL announcements produces returns that are different from returns that would be expected. Thereafter, t – statistic was computed and compared to its assumed distribution under the null hypothesis that average abnormal performance over the event window is not equal to zero. The null hypothesis will be accepted or rejected if t – statistics exceed a critical value. MS Excel and SPSS computer packages were used appropriately to analyze the data for the study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents market reaction to announcements of cross-border listings on share prices for companies quoted at the Nairobi Stock Exchange (NSE). It also tests hypothesis that has been advanced by prior literature to explain the abnormal price reaction to cross border listing announcements. Average abnormal return grouped per company, stock market cross-listed and for the overall cross-border listing. The chapter also presents the trendlines of the abnormal returns of the stocks cross-listed before and after the cross-border listing announcement.

4.2 Market Reaction to Cross-Border Listing

The study sought to establish the market reaction to cross-border listing by analyzing the abnormal returns, if any, of the stocks that had been cross-border listed. Abnormal Returns (AR) of the shares were calculated by computing the difference between price returns of the stocks listed and the NSE-20 share index returns at the same period in time. This was aimed at showing if the stock listed had higher return than the market or vice versa. To analyze the market reaction to cross-listing announcement further, the study computed the average Security Return Variability (SRV) which generally shows how variable (fluctuations in returns) the returns were before and after cross-border listing announcements. The data was then presented in appendix III and its descriptive statistics presented in table 4.1.

Table 4.1: Descriptive Statistics for Abnormal Returns

	Mean	STDEV	AR at t₀	MIN	MAX	First Quartile	Second Quartile (Median)	Third Quartile
Kenya Airways - Uganda	0.0005	0.0250	0.0134	-0.1544	0.0425	-0.0021	0.0031	0.0125
Kenya Airways - Tanzania	0.0035	0.0335	0.0050	-0.1528	0.1182	-0.0025	0.0050	0.0145
EA Breweries - Uganda	0.0021	0.0208	0.0278	-0.0763	0.0756	-0.0074	0.0007	0.0125
EA Breweries - Tanzania	0.0008	0.0214	-0.0155	-0.0634	0.0666	-0.0098	-0.0016	0.0070
Equity Bank - Uganda	-0.0155	0.1229	0.0058	-0.9071	0.0874	-0.0105	0.0023	0.0190
Equity Bank - Tanzania	-0.0137	0.1228	-0.1753	-0.8925	0.1005	-0.0088	0.0005	0.0155
Jubilee Insurance - Uganda	-0.0011	0.0123	0.0030	-0.0350	0.0503	-0.0042	0.0000	0.0031
Jubilee Insurance - Tanzania	0.0019	0.0276	-0.0084	-0.0922	0.0825	-0.0089	0.0020	0.0118
KCB - Uganda	0.0023	0.0217	-0.0468	-0.0531	0.0485	-0.0104	-0.0006	0.0185
KCB - Rwanda	0.0001	0.0172	0.0025	-0.0565	0.0532	-0.0089	-0.0009	0.0049
Market Average	-0.0019	0.0173	-0.0189	-0.0957	0.0157	-0.0047	0.0004	0.0054
AAR for Uganda Listing	-0.0023	0.0267	0.0006	-0.1899	0.0274	-0.0057	0.0001	0.0081
AAR for Tanzania Listing	-0.0018	0.0317	-0.0486	-0.2140	0.0350	-0.0037	0.0027	0.0097
AAR for Rwanda	0.0001	0.0172	0.0025	-0.0565	0.0532	-0.0089	-0.0009	0.0049

Table 4.1 shows that on average, 7 out of the 10 cross-border listings done in Kenya had positive abnormal returns while 3 had negative abnormal returns. However, the market average was negative depicting that the cross-border-listed stocks have lower returns (underperform with regards to share prices) than the market. Determining how the market perceive specific stock market (cross-border) of listing by grouping the abnormal returns per markets where the particular shares were listed, the study established that stocks listed in Uganda and Tanzania, overall, had negative returns while those listed in Rwanda had positive average returns.

The study also look at the abnormal returns on the announcement date and established that the market reacted positively to 6 of 10 stocks cross-listed as shown by positive abnormal returns on the announcement day while the NSE market average was negative. The findings also shows that there was abnormal returns on stock that were cross-listed with Ugandan and Rwandan stock markets on the announcement day while the returns were negative for those cross-listed with Tanzanian stock market. Table 4.1 further presents that at least half of all the trading days of the 7 of the 10 cross listings had positive AR values since the second quartile (median) value of AR was positive.

Table 4.2: Market Reaction across the Event Period

	Mean CAR	STDEV
From day -0 to day +0	-0.0019	0.0173
From day -15 to day +15	-.00481	0.023445
From day -15 to day -1	-.01055	0.031974
From day 0 to day +15	.00057	0.009019
From day 0 to day +1	-.01290	0.010464
From day -1 to day 1	-.00995	0.007844
Form day -3 to day +3	-.00555	0.010879
From day -7 to day +7	-.00828	0.026137

The study further analyzed the data with regards to time intervals within the event window. Table 4.2 shows that while the average AR for t_{-15} to t_{+1} -0.01055, the average AR for t_0 to t_{+15} time period was 0.00057 signifying better performance of the cross-border listed stocks for the same period of time of pre and post-announcement. However, the average AR for t_0 to t_{+1} was -0.01290, t_{-1} to t_{+1} was -0.00995, t_{-3} to t_{+3} was -0.00555

signifies that the cross-listed stocks performed poorly than the market in period near cross-listing announcement than periods far from t_0 .

Figure 4.1: Average Abnormal Returns

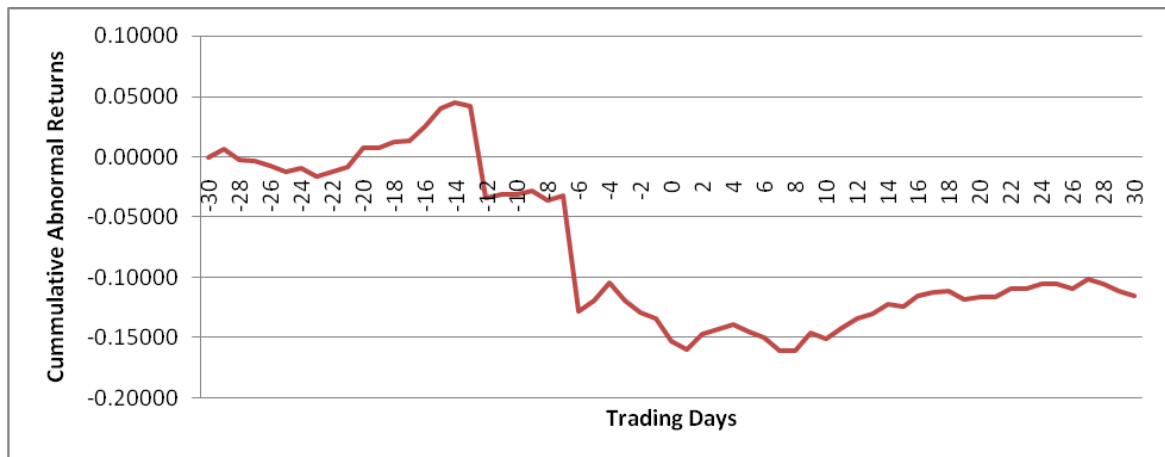


Figure 4.1 presents the trendline of average abnormal returns on cross-border listed stocks. The findings also show that the post cross-border-listing announcement had positive abnormal returns than the pre-announcement period. The t_{12} and t_{-6} had the highest negative abnormal returns. The Security Return Variability (SRV) presented in appendix III shows that day t_{12} and t_{-6} had a value of 11.3663 and 17.9247. However, the SRV for other trading days were below 0.5. The post-announcement period has lower variability - distributed about AR value of 0 - than the pre-announcement period indicating that the investors did not benefit much from trading in shares of cross-listed companies than they would have before cross listing (pre-event period). This is in line with the semi-strong market efficiency which posits that no investor would have above normal returns (abnormal returns) by trading on already publicly available information.

4.3 Cumulative Abnormal Return

The Cumulative Abnormal Returns (CAR) presented in appendix V shows that the Cumulative Abnormal Return reduced from positive to negative with time from day t_{-30} to t_{30} . However, the stock cross-listed at Rwanda stock market had more positive CAR values in the post cross-border listing periods. Figure 4.2 shows that cross-border listed stock performs poorly than the market a few days before announcement to the 30th day as they have negative values.

Figure 4.2: Overall Cumulative Abnormal Returns (CAR)



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings in the previous chapter, conclusions drawn from such findings and recommendations. Chapter's structure is organized into summary of findings, conclusions, recommendations, limitations to the study and areas for further research.

5.2 Summary of Findings

The study found out that, overall, cross listings leads to underperformance of stocks in the market as they had negative cumulative abnormal return values especially in the post-announcement dates. Overall, negative performance of the stock is indicated by a mean AR value of -0.0019. However, the average performance of the companies that had announced cross-border listing indicates that 7 out of the 10 of the cross-border listings had positive average abnormal returns (AR). On the announcement day, most cross-listed stocks (6 out of 10) had positive abnormal returns although the overall market return on the announcement date was negative (-0.0189). The study also shows that on average half of the trading days had values lying on the both sides of 0.0054 as indicated by the second quartile.

The minimum and the maximum values of AR for the entire market were between -0.0957 and 0.0157. This implies that the abnormality of returns were low and, therefore, none of the investors significantly used the information regarding cross-border listing announcement to have an above market returns. Therefore, the market absorbed the

information and incorporated the same into its share prices and the investors could not use the information to benefit much from trading on the cross-listed stock.

5.2 Conclusions

The study presents evidence on the stock price impact of cross-listing border listings as the indicator of market reactions to information on cross-listing. Although returns varied among firms and information based on the stock markets of the three countries to which cross-listings were done, they are negative on the announcement dates. The negative announcement period effect, together with the below normal post cross-listing performance, shows that regional cross-listing decreases firm value. Durand, Gunawan and Tarca (2006) posited that cross listing are used by companies to convince stakeholders of their financial reporting and governance standards and may thus be a smokescreen for an absence of firm quality.

According to Durand, Gunawan and Tarca, in an efficient market, given the above reasons, cross-listing can be associated with negative abnormal returns as additional firm information is revealed to the market post cross-listing. In addition, Foerster and Karolyi (1999, 2000) report that non-US firms raising capital in the US underperformed local benchmarks of comparable firms over three years following issuance as indicated by declining cumulative returns.

The study also concludes that the market does not regard individual stock market highly than another in their analysis of cross-border listing announcement as they all had positive and negative returns following cross-border listing announcements. Given that NSE is market driven and has the same regulatory procedures applies on cross-listings, the market

had to react the same irrespective of the stock market where the cross-listings were conducted. This is supported by La Porta et al.'s (1998) reported that broad stock market regulatory classification are used by investors to analyse the magnitude and persistence of volatility spillovers from the foreign listing to the home equity of cross-listed companies and this might have applied in this study.

5.4 Recommendations

Given that the cross-listed firms experienced negative cumulative abnormal returns in the post-announcement period, the study suggests that companies should consider the cumulative negative effect of cross-border listings before making such corporate actions. This is justified by the conceptualization that negative returns indicate that the market may disregard information on cross-listing announcement hence the stocks of the cross-listed companies underperform in the market.

To foster an increase in regional cross-listings, appropriate and complementary action is required by both firms and policy makers. For firms to pursue regional cross-listings that are market driven, they need to improve on corporate governance, minimize information asymmetry, increase their net worth and harmonize their accounting and reporting format with international guidelines.

5.3 Limitations of the Study

The announcements of cross border listing results may have been affected by other market anomalies such as the weekend and Monday effect. The study also fell short of bringing out clearly the market reaction to cross-border listing with respect to regional market as the companies had initially cross-listed in Uganda stock exchange before other stock

exchanges. This could have had an effect on how the market regards other subsequent cross-border listing announcements. Therefore, the cross-border comparisons would have been affected by this.

5.4 Areas for Further Studies

The study suggests that, another study could be done to determine the actual challenges and Company's annual performance in the year of cross-border listing.

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APPENDICES

Appendix I: Cross Listed Companies And The Announcement Dates

S/NO	COMPANY	DATE OF CROSS BORDER LISTING	DATE OF CBL	SOURCE OF DATA
1	Kenya Airways	UGANDA STOCK EXCHANGE	20/12/01	Airline industry information
		DAR -ES SALAAM STOCK EXCHANGE	22/9/2004	The standard 22 nd September 2001
2	East African Breweries Limited	UGANDA STOCK EXCHANGE	12/3/2001	The east African 12 th march 2001
		DAR -ES SALAAM STOCK EXCHANGE	14 th June 2005	The standard 14 th June 2005
3	Equity Bank Group	UGANDA STOCK EXCHANGE	3 rd April 2009	Daily nation 3 rd April 2009
		DAR -ES SALAAM STOCK EXCHANGE	14 th April 2009	The east African 14 th April 2009
4	Jubilee Insurance	UGANDA STOCK EXCHANGE	12 th March 2001	The east African 12 th March 2001
		DAR -ES SALAAM STOCK EXCHANGE	5 th May 2006	The east African 5 th May 2006
5	Kenya Commercial Bank Group	UGANDA STOCK EXCHANGE	28 th October 2008	Daily Nation 28 th October 2008
		DAR -ES SALAAM STOCK EXCHANGE	2 nd June 2009	The news times 2 nd June 2009
6	Nation Media Group	UGANDA STOCK EXCHANGE	7 th October 2010	Daily nation
		DAR -ES SALAAM STOCK EXCHANGE		
		RWANDA'S OVER-THE-COUNTER (OTC) SECURITIES MARKET		

Appendix III: Average Abnormal Returns and Average Stock Return Variability

Trading Day	AAR	ASRV	Listed in Uganda	Listed in Tanzania	Listed in Rwanda
-30	-0.0006	0.0006	-0.0027	0.0040	-0.0081
-29	0.0073	0.1056	0.0177	-0.0037	-0.0005
-28	-0.0093	0.1680	0.0122	-0.0399	0.0059
-27	-0.0007	0.0010	0.0015	-0.0032	-0.0020
-26	-0.0046	0.0418	-0.0062	-0.0017	-0.0085
-25	-0.0047	0.0426	-0.0098	-0.0020	0.0105
-24	0.0029	0.0164	0.0001	0.0046	0.0102
-23	-0.0064	0.0802	-0.0307	0.0097	0.0509
-22	0.0031	0.0189	-0.0054	0.0174	-0.0115
-21	0.0041	0.0323	-0.0044	0.0207	-0.0198
-20	0.0157	0.4849	0.0057	0.0330	-0.0029
-19	0.0001	0.0000	-0.0013	0.0030	-0.0050
-18	0.0056	0.0616	0.0031	0.0100	0.0005
-17	0.0005	0.0004	0.0005	0.0013	-0.0031
-16	0.0116	0.2639	0.0211	0.0015	0.0045
-15	0.0149	0.4314	0.0223	0.0110	-0.0072
-14	0.0054	0.0566	0.0041	0.0224	-0.0565
-13	-0.0030	0.0170	-0.0232	0.0227	-0.0045
-12	-0.0762	11.3663	0.0169	-0.2140	0.0093
-11	0.0028	0.0154	-0.0025	0.0087	0.0059
-10	0.0004	0.0003	-0.0069	0.0088	0.0030
-9	0.0026	0.0128	-0.0057	0.0129	0.0026
-8	-0.0074	0.1085	-0.0036	-0.0117	-0.0097
-7	0.0036	0.0249	0.0050	0.0022	0.0021
-6	-0.0957	17.9247	-0.1899	-0.0027	0.0033
-5	0.0091	0.1626	0.0087	0.0127	-0.0032
-4	0.0151	0.4434	0.0141	0.0195	0.0021
-3	-0.0154	0.4609	-0.0091	-0.0281	0.0045
-2	-0.0102	0.2039	0.0026	-0.0296	0.0031
-1	-0.0041	0.0322	-0.0068	0.0006	-0.0089
0	-0.0189	0.6954	0.0006	-0.0486	0.0025
1	-0.0069	0.0944	0.0109	-0.0284	-0.0106
2	0.0120	0.2830	0.0126	0.0180	-0.0144
3	0.0046	0.0406	-0.0023	0.0145	-0.0009
4	0.0035	0.0242	-0.0098	0.0211	0.0000
5	-0.0054	0.0579	-0.0077	-0.0025	-0.0061
6	-0.0047	0.0426	-0.0192	0.0123	0.0000
7	-0.0109	0.2303	-0.0218	-0.0084	0.0342

Trading Day	AAR	ASRV	Listed in Uganda	Listed in Tanzania	Listed in Rwanda
8	-0.0005	0.0005	0.0051	-0.0050	-0.0100
9	0.0149	0.4351	0.0274	0.0011	0.0080
10	-0.0051	0.0518	-0.0023	-0.0065	-0.0142
11	0.0091	0.1620	0.0091	0.0080	0.0133
12	0.0077	0.1149	0.0081	0.0002	0.0352
13	0.0038	0.0286	0.0024	0.0069	-0.0017
14	0.0081	0.1269	0.0102	0.0097	-0.0091
15	-0.0021	0.0088	-0.0065	0.0066	-0.0147
16	0.0094	0.1727	-0.0053	0.0350	-0.0196
17	0.0025	0.0125	0.0124	-0.0115	0.0095
18	0.0008	0.0013	-0.0047	-0.0020	0.0398
19	-0.0062	0.0745	-0.0080	-0.0018	-0.0145
20	0.0018	0.0060	0.0024	0.0027	-0.0051
21	0.0000	0.0000	-0.0019	0.0000	0.0096
22	0.0065	0.0825	0.0087	0.0043	0.0044
23	0.0001	0.0000	-0.0063	0.0044	0.0145
24	0.0043	0.0354	0.0079	0.0045	-0.0150
25	-0.0004	0.0004	0.0001	0.0068	-0.0320
26	-0.0032	0.0198	0.0014	-0.0230	0.0532
27	0.0071	0.0977	0.0103	0.0061	-0.0052
28	-0.0036	0.0252	0.0032	-0.0142	0.0049
29	-0.0062	0.0760	-0.0056	-0.0066	-0.0078
30	-0.0038	0.0287	-0.0005	-0.0065	-0.0098

Appendix IV: Abnormal Returns

Day	KQ 2001	KQ 2004	EABL 2001	EABL 2005	EQTY 2009	EQTY 2009	JUB 2001	JUB 2006	KCB 2008	KCB 2009	AAR	Listed in Uganda	Listed in Tanzania	Listed in Rwanda
	Uganda	Tanzania	Uganda	Tanzania	Uganda	Tanzania	Uganda	Tanzania	Uganda	Rwanda				
-30	0.03348	-0.00402	0.00447	0.00533	-0.06662	0.01489	0.00254	-0.00016	0.01249	-0.00807	-0.00057	-0.00273	0.00401	-0.00807
-29	0.02998	0.00992	0.02254	-0.00553	0.01340	0.01964	-0.00284	-0.03872	0.02554	-0.00045	0.00735	0.01773	-0.00367	-0.00045
-28	0.01250	0.00548	-0.00284	0.00705	0.02235	-0.13733	-0.00224	-0.03474	0.03117	0.00594	-0.00927	0.01219	-0.03989	0.00594
-27	0.04246	0.00683	-0.00397	-0.01472	-0.02282	0.00225	-0.00172	-0.00715	-0.00637	-0.00202	-0.00072	0.00152	-0.00319	-0.00202
-26	-0.02007	0.00555	-0.00748	0.01193	0.00054	-0.00884	-0.00094	-0.01534	-0.00308	-0.00850	-0.00462	-0.00621	-0.00168	-0.00850
-25	-0.00880	0.00792	0.00593	0.00557	-0.02775	-0.00636	-0.00065	-0.01515	-0.01791	0.01052	-0.00467	-0.00983	-0.00200	0.01052
-24	-0.01394	0.00669	0.00685	-0.00156	0.01964	0.01639	-0.00622	-0.00324	-0.00585	0.01018	0.00289	0.00009	0.00457	0.01018
-23	0.00524	0.00600	-0.00869	-0.00260	-0.13733	0.04068	0.00422	-0.00541	-0.01703	0.05086	-0.00641	-0.03072	0.00967	0.05086
-22	-0.04160	0.03363	0.00019	-0.00137	0.00225	0.03400	0.00019	0.00332	0.01201	-0.01153	0.00311	-0.00539	0.01740	-0.01153
-21	0.01697	0.00358	-0.00508	0.01060	-0.05095	0.06620	0.01114	0.00223	0.00576	-0.01980	0.00407	-0.00443	0.02065	-0.01980
-20	0.00298	0.02315	-0.00069	0.00677	0.03253	0.10055	-0.00069	0.00152	-0.00581	-0.00285	0.01574	0.00566	0.03300	-0.00285
-19	0.01441	-0.00021	0.01352	0.03027	0.02179	-0.03634	-0.03504	0.01842	-0.02124	-0.00498	0.00006	-0.00131	0.00304	-0.00498
-18	-0.00098	0.00359	-0.00928	0.03653	0.04068	-0.00216	-0.00499	0.00204	-0.00984	0.00052	0.00561	0.00312	0.01000	0.00052
-17	-0.01786	-0.00965	-0.00900	0.01300	0.03400	-0.00375	-0.00408	0.00570	-0.00059	-0.00313	0.00046	0.00050	0.00132	-0.00313
-16	0.01802	0.01551	0.00876	-0.00648	0.06620	-0.00925	0.00221	0.00618	0.01050	0.00450	0.01161	0.02114	0.00149	0.00450
-15	-0.00164	0.00396	0.01338	0.01743	0.03860	-0.03099	0.05027	0.05362	0.01112	-0.00725	0.01485	0.02235	0.01101	-0.00725
-14	0.01723	0.00745	0.00675	0.06664	0.01288	0.00303	-0.00989	0.01266	-0.00641	-0.05653	0.00538	0.00411	0.02244	-0.05653
-13	0.00875	0.00921	-0.07633	0.05542	-0.00210	0.02557	-0.03372	0.00064	-0.01242	-0.00451	-0.00295	-0.02317	0.02271	-0.00451
-12	-0.00032	0.03824	0.07561	-0.01711	0.01903	-0.89252	-0.00676	0.01529	-0.00311	0.00932	-0.07623	0.01689	-0.21402	0.00932
-11	0.01091	0.01507	-0.00736	-0.02011	-0.00902	0.03443	0.00004	0.00530	-0.00703	0.00585	0.00281	-0.00249	0.00868	0.00585
-10	-0.01581	0.00100	-0.00562	-0.06336	-0.00732	0.09385	-0.03366	0.00364	0.02804	0.00303	0.00038	-0.00687	0.00878	0.00303
-9	0.01027	-0.06312	0.01254	-0.03839	-0.03603	0.07064	0.00181	0.08247	-0.01713	0.00257	0.00256	-0.00571	0.01290	0.00257
-8	-0.00898	0.03131	0.00806	0.03243	0.00931	-0.01829	-0.01697	-0.09220	-0.00942	-0.00971	-0.00745	-0.00360	-0.01169	-0.00971
-7	0.00661	-0.01461	0.00971	0.00518	0.01414	0.02267	-0.00169	-0.00456	-0.00392	0.00213	0.00357	0.00497	0.00217	0.00213
-6	0.00308	-0.00748	0.00628	-0.00130	-0.90706	-0.00101	0.00115	-0.00113	-0.05309	0.00327	-0.09573	-0.18993	-0.00273	0.00327
-5	0.01113	-0.00042	-0.00024	0.00603	0.03730	0.02826	-0.00420	0.01710	-0.00059	-0.00318	0.00912	0.00868	0.01274	-0.00318
-4	-0.00114	0.11818	-0.01376	-0.01900	0.08737	-0.00083	0.00403	-0.02018	-0.00616	0.00205	0.01506	0.01407	0.01954	0.00205

-3	-0.15435	-0.15280	0.00665	0.04162	0.07262	-0.02299	0.00518	0.02169	0.02433	0.00453	-0.01535	-0.00911	-0.02812	0.00453
-2	-0.02397	0.00916	0.01392	-0.02345	-0.00319	-0.09497	0.00922	-0.00914	0.01717	0.00315	-0.01021	0.00263	-0.02960	0.00315
-1	0.00440	0.00417	-0.01766	-0.00620	0.02766	0.01371	-0.00541	-0.00918	-0.04318	-0.00887	-0.00406	-0.00684	0.00062	-0.00887
0	0.01339	0.00504	0.02784	-0.01550	0.00580	-0.17535	0.00296	-0.00844	-0.04679	0.00249	-0.01886	0.00064	-0.04856	0.00249
1	0.01309	0.00379	0.01420	-0.01055	0.00230	-0.09674	0.00653	-0.00992	0.01846	-0.01063	-0.00695	0.01092	-0.02836	-0.01063
2	0.00000	-0.00337	-0.00727	-0.00083	0.02064	0.03378	0.00346	0.04230	0.04592	-0.01435	0.01203	0.01255	0.01797	-0.01435
3	0.00000	-0.00271	-0.01899	0.00426	-0.02458	0.06071	-0.00145	-0.00432	0.03350	-0.00088	0.00456	-0.00230	0.01449	-0.00088
4	-0.02806	0.00362	0.01246	0.01399	-0.08378	0.00463	0.00168	0.06219	0.04847	-0.00002	0.00352	-0.00985	0.02111	-0.00002
5	0.00798	-0.00232	0.00345	-0.00755	-0.08584	0.00565	-0.00036	-0.00568	0.03638	-0.00613	-0.00544	-0.00768	-0.00247	-0.00613
6	0.00455	-0.00252	-0.02915	-0.00713	-0.09719	0.06786	0.00313	-0.00894	0.02279	-0.00004	-0.00466	-0.01918	0.01232	-0.00004
7	0.01269	0.00428	0.00065	-0.01247	-0.08618	-0.01206	-0.01406	-0.01326	-0.02233	0.03422	-0.01085	-0.02184	-0.00838	0.03422
8	-0.00233	0.01014	0.02938	0.00800	0.01569	-0.00433	0.00257	-0.03401	-0.01996	-0.01004	-0.00049	0.00507	-0.00505	-0.01004
9	0.01408	0.02026	0.02292	-0.00520	0.06300	-0.02117	0.00853	0.01046	0.02830	0.00797	0.01491	0.02736	0.00109	0.00797
10	0.01040	0.00493	-0.03273	-0.00908	0.00571	-0.02855	0.00344	0.00669	0.00190	-0.01421	-0.00515	-0.00226	-0.00650	-0.01421
11	-0.00206	0.02703	0.03759	-0.00419	0.00303	0.00423	0.01668	0.00501	-0.00961	0.01329	0.00910	0.00913	0.00802	0.01329
12	0.00000	0.02254	-0.00089	-0.00979	0.06402	0.00459	-0.00618	-0.01652	-0.01635	0.03523	0.00766	0.00812	0.00020	0.03523
13	-0.01019	-0.00389	0.00222	-0.00719	-0.01146	0.00703	-0.00043	0.03180	0.03206	-0.00173	0.00382	0.00244	0.00694	-0.00173
14	0.00904	0.02049	0.01288	-0.00127	-0.00692	-0.00748	-0.00076	0.02711	0.03656	-0.00912	0.00805	0.01016	0.00971	-0.00912
15	0.00806	0.01455	-0.02516	0.04085	-0.01045	0.00052	0.00369	-0.02967	-0.00888	-0.01473	-0.00212	-0.00655	0.00656	-0.01473
16	-0.00392	0.02893	-0.00688	0.03055	-0.02825	0.01518	0.01077	0.06552	0.00167	-0.01959	0.00940	-0.00532	0.03504	-0.01959
17	0.01170	0.01376	0.03913	-0.00607	0.00830	0.01419	0.00042	-0.06796	0.00234	0.00952	0.00253	0.01238	-0.01152	0.00952
18	0.00081	0.00502	-0.01599	-0.01308	0.00703	-0.00368	-0.00083	0.00370	-0.01451	0.03981	0.00083	-0.00470	-0.00201	0.03981
19	-0.00205	-0.01553	-0.00010	-0.00130	-0.00748	0.00718	-0.01775	0.00236	-0.01251	-0.01452	-0.00617	-0.00798	-0.00182	-0.01452
20	-0.01449	0.00111	-0.01667	-0.01484	0.00052	-0.00364	0.01959	0.02808	0.02293	-0.00505	0.00175	0.00238	0.00268	-0.00505
21	0.02355	0.00494	-0.01223	-0.00853	0.01518	-0.00820	-0.02101	0.01183	-0.01492	0.00955	0.00002	-0.00189	0.00001	0.00955
22	0.01343	0.01531	0.03873	-0.00482	0.01419	0.00136	0.00165	0.00525	-0.02457	0.00441	0.00649	0.00869	0.00427	0.00441
23	-0.02604	0.00717	0.00091	0.00684	-0.00368	-0.00052	0.00391	0.00408	-0.00663	0.01449	0.00005	-0.00630	0.00439	0.01449
24	0.01682	0.02931	0.00449	-0.02851	0.00718	-0.01238	0.00151	0.02958	0.00955	-0.01500	0.00425	0.00791	0.00450	-0.01500
25	-0.00125	0.07413	-0.01242	-0.01204	-0.00364	-0.00811	-0.00590	-0.02660	0.02362	-0.03203	-0.00042	0.00008	0.00684	-0.03203
26	0.01606	-0.08731	-0.00739	-0.00547	-0.00820	-0.00307	-0.00106	0.00398	0.00750	0.05316	-0.00318	0.00138	-0.02297	0.05316
27	0.00793	-0.00356	0.03148	0.02035	0.00136	-0.00911	-0.01508	0.01667	0.02587	-0.00522	0.00707	0.01031	0.00609	-0.00522

28	-0.00175	-0.01884	0.00285	-0.02725	-0.00052	-0.00785	0.00285	-0.00285	0.01250	0.00494	-0.00359	0.00319	-0.01420	0.00494
29	0.00000	-0.03485	-0.00572	0.00558	-0.01238	0.00464	0.00049	-0.00185	-0.01042	-0.00781	-0.00623	-0.00561	-0.00662	-0.00781
30	0.00000	-0.04048	-0.00719	0.00274	-0.00811	0.01548	0.00223	-0.00372	0.01055	-0.00982	-0.00383	-0.00050	-0.00650	-0.00982

Appendix V: Cumulative Abnormal Return

Day	Uganda		Tanzania		Rwanda		Overall/Average	
	AAR	CAAR	AAR	CAAR	AAR	CAAR	AAR	CAAR
-30	-0.00273	-0.00273	0.00401	0.00401	-0.00807	-0.00807	-0.00057	-0.00057
-29	0.01773	0.01500	-0.00367	0.00034	-0.00045	-0.00852	0.00735	0.00678
-28	0.01219	0.02718	-0.03989	-0.03955	0.00594	-0.00258	-0.00927	-0.00249
-27	0.00152	0.02870	-0.00319	-0.04275	-0.00202	-0.00460	-0.00072	-0.00321
-26	-0.00621	0.02249	-0.00168	-0.04442	-0.00850	-0.01310	-0.00462	-0.00783
-25	-0.00983	0.01266	-0.00200	-0.04643	0.01052	-0.00258	-0.00467	-0.01250
-24	0.00009	0.01275	0.00457	-0.04185	0.01018	0.00760	0.00289	-0.00961
-23	-0.03072	-0.01796	0.00967	-0.03219	0.05086	0.05845	-0.00641	-0.01601
-22	-0.00539	-0.02335	0.01740	-0.01479	-0.01153	0.04693	0.00311	-0.01290
-21	-0.00443	-0.02778	0.02065	0.00586	-0.01980	0.02713	0.00407	-0.00883
-20	0.00566	-0.02212	0.03300	0.03886	-0.00285	0.02428	0.01574	0.00691
-19	-0.00131	-0.02343	0.00304	0.04190	-0.00498	0.01930	0.00006	0.00697
-18	0.00312	-0.02032	0.01000	0.05190	0.00052	0.01982	0.00561	0.01258
-17	0.00050	-0.01982	0.00132	0.05322	-0.00313	0.01669	0.00046	0.01305
-16	0.02114	0.00132	0.00149	0.05471	0.00450	0.02118	0.01161	0.02466
-15	0.02235	0.02367	0.01101	0.06572	-0.00725	0.01394	0.01485	0.03951
-14	0.00411	0.02778	0.02244	0.08816	-0.05653	-0.04259	0.00538	0.04489
-13	-0.02317	0.00461	0.02271	0.11087	-0.00451	-0.04711	-0.00295	0.04194
-12	0.01689	0.02150	-0.21402	-0.10316	0.00932	-0.03778	-0.07623	-0.03429
-11	-0.00249	0.01901	0.00868	-0.09448	0.00585	-0.03193	0.00281	-0.03148
-10	-0.00687	0.01214	0.00878	-0.08570	0.00303	-0.02890	0.00038	-0.03110
-9	-0.00571	0.00643	0.01290	-0.07280	0.00257	-0.02633	0.00256	-0.02854
-8	-0.00360	0.00283	-0.01169	-0.08449	-0.00971	-0.03604	-0.00745	-0.03598
-7	0.00497	0.00780	0.00217	-0.08232	0.00213	-0.03390	0.00357	-0.03242
-6	-0.18993	-0.18213	-0.00273	-0.08505	0.00327	-0.03064	-0.09573	-0.12815
-5	0.00868	-0.17345	0.01274	-0.07231	-0.00318	-0.03382	0.00912	-0.11903
-4	0.01407	-0.15938	0.01954	-0.05276	0.00205	-0.03176	0.01506	-0.10397
-3	-0.00911	-0.16849	-0.02812	-0.08088	0.00453	-0.02723	-0.01535	-0.11932
-2	0.00263	-0.16587	-0.02960	-0.11048	0.00315	-0.02409	-0.01021	-0.12953
-1	-0.00684	-0.17270	0.00062	-0.10986	-0.00887	-0.03296	-0.00406	-0.13359
0	0.00064	-0.17206	-0.04856	-0.15842	0.00249	-0.03048	-0.01886	-0.15245
1	0.01092	-0.16115	-0.02836	-0.18677	-0.01063	-0.04111	-0.00695	-0.15939
2	0.01255	-0.14860	0.01797	-0.16880	-0.01435	-0.05546	0.01203	-0.14737
3	-0.00230	-0.15090	0.01449	-0.15432	-0.00088	-0.05634	0.00456	-0.14281
4	-0.00985	-0.16075	0.02111	-0.13321	-0.00002	-0.05636	0.00352	-0.13929
5	-0.00768	-0.16843	-0.00247	-0.13569	-0.00613	-0.06249	-0.00544	-0.14474

6	-0.01918	-0.18760	0.01232	-0.12337	-0.00004	-0.06253	-0.00466	-0.14940
7	-0.02184	-0.20945	-0.00838	-0.13174	0.03422	-0.02831	-0.01085	-0.16025
8	0.00507	-0.20438	-0.00505	-0.13679	-0.01004	-0.03835	-0.00049	-0.16074
9	0.02736	-0.17701	0.00109	-0.13570	0.00797	-0.03038	0.01491	-0.14583
10	-0.00226	-0.17927	-0.00650	-0.14220	-0.01421	-0.04459	-0.00515	-0.15097
11	0.00913	-0.17014	0.00802	-0.13419	0.01329	-0.03129	0.00910	-0.14187
12	0.00812	-0.16202	0.00020	-0.13398	0.03523	0.00393	0.00766	-0.13421
13	0.00244	-0.15958	0.00694	-0.12704	-0.00173	0.00221	0.00382	-0.13039
14	0.01016	-0.14942	0.00971	-0.11733	-0.00912	-0.00691	0.00805	-0.12233
15	-0.00655	-0.15597	0.00656	-0.11077	-0.01473	-0.02164	-0.00212	-0.12446
16	-0.00532	-0.16129	0.03504	-0.07572	-0.01959	-0.04124	0.00940	-0.11506
17	0.01238	-0.14892	-0.01152	-0.08724	0.00952	-0.03171	0.00253	-0.11253
18	-0.00470	-0.15362	-0.00201	-0.08925	0.03981	0.00810	0.00083	-0.11170
19	-0.00798	-0.16159	-0.00182	-0.09108	-0.01452	-0.00643	-0.00617	-0.11787
20	0.00238	-0.15922	0.00268	-0.08840	-0.00505	-0.01148	0.00175	-0.11612
21	-0.00189	-0.16110	0.00001	-0.08839	0.00955	-0.00193	0.00002	-0.11610
22	0.00869	-0.15242	0.00427	-0.08411	0.00441	0.00248	0.00649	-0.10960
23	-0.00630	-0.15872	0.00439	-0.07972	0.01449	0.01698	0.00005	-0.10955
24	0.00791	-0.15081	0.00450	-0.07522	-0.01500	0.00198	0.00425	-0.10530
25	0.00008	-0.15073	0.00684	-0.06838	-0.03203	-0.03005	-0.00042	-0.10572
26	0.00138	-0.14935	-0.02297	-0.09135	0.05316	0.02311	-0.00318	-0.10890
27	0.01031	-0.13904	0.00609	-0.08526	-0.00522	0.01789	0.00707	-0.10183
28	0.00319	-0.13585	-0.01420	-0.09946	0.00494	0.02283	-0.00359	-0.10542
29	-0.00561	-0.14146	-0.00662	-0.10608	-0.00781	0.01502	-0.00623	-0.11166
30	-0.00050	-0.14196	-0.00650	-0.11257	-0.00982	0.00520	-0.00383	-0.11549

Appendix VI: Introductory Letter