# THE IMPACT OF CROSS-LISTING ON SHARE RETURNS FOR FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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# DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university for examination.

Signed: _____ Date: _____

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This project has been presented for examination with my approval as the University supervisor.

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# DEDICATION

To Ernestina Chao Mutua.Love at its purest.

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# ABSTRACT

This study sought to examine how cross-listing affects the share returns of cross-listed at the Nairobi Securities Exchange. The research design adopted in this study was the experimental research design. The population was 64 listed companies in Kenya from which 16 firms were sampled out with 8 of the firms being cross-listed ones. The final sample consisted of 14 firms after one cross-listed firm was dropped for lack of data. This study used secondary data obtained from the NSE Secretariat. Specifically, data was gathered on annual share prices of firms selected for the study for an 8-year period (3 years before and 5 years after the cross-listed firms did so), the total assets, and the NSE 20 share index. The study used descriptive analysis and ANOVA test of differences. The study found that there were no statistically significant differences between the abnormal returns of cross-listed stocks and no-cross-listed stocks. The study concludes that cross-listing does not lead to better performance of cross-listed stocks and neither does it hurt the rival firms. The study recommends that firms in Kenya need to vet the markets in which they seek to cross-list on in terms of their reputation vis-à-vis the local stock exchange before they cross-list as the current East African markets do not offer any premium.

# LIST OF ABBREVIATIONS

| | |
|---|---|
| ANOVA | Analysis of Variance |
| CMA | Capital Markets Authority |
| DSE | Dar es salaam Stock Exchange |
| GARCH | Generalized Autoregressive Conditional Heteroskedasticity |
| IFC | International Finance Corporation |
| NASDAQ | National Association of Security Dealers Automated Quotations |
| NSE | Nairobi Securities Exchange |
| OLS | Ordinary Least Squares |
| RSA | Rwanda Stock Exchange |
| UK | United Kingdom |
| US | United States |
| USA | United States of America |
| USE | Uganda Securities Exchange |

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# CHAPTER ONE:INTRODUCTION

## 1.1 Background of the Study

Cross-listing refers to the listing of ordinary shares of a firm on a different exchange other than its home stock exchange. Firms generally are profit maximizers, and so decisions taken by firms are geared towards maximizing the value of the firm and shareholders' wealth Ola09. The decision to cross –list may be advised by various factors; however the ultimate evaluation is made on its effect on the value of the firm, as measured by the return on its quoted securities. The return on a firm's securities is the change in its value between a base period and the point in time at which it is being evaluated.

A theoretical relationship between cross-listing and share returns can be examined from the perspectives of various scholars. The visibility/investor recognition hypothesis by Merton (1987) argues that increased visibility and investor recognition occasioned by cross-listing increased investor base and results in lower expected returns hence increased the firm value. The segmentation hypothesis, presented by Alexander, Eun, and Janakiramanan (1987), predicts an increase in stock prices due to market integration. The analyst coverage hypothesis by Domowitz, Glen, and Madhavan (1998) predicts an entry of market analysts due to the increase in trading activity, with a consequent reduced volatility. Doidge, Karolyi, Lins, Miller, and Stulz (2009) suggest that the better alignment of the interests of the cross-listed company to those of the minority shareholders and the inability of the controlling shareholders to extract private benefits from the firm enables it to better take advantage of growth opportunities, hence higher returns.

As at December 2014, the Nairobi Securities Exchange (NSE) had 64 listed companies, 8 of which were cross-listed within East Africa. Nation Media Group and

Kenya Commercial Bank are listed in the Uganda Securities Exchange (USE), the Dar-es-salaam Stock Exchange (DSE), and the Rwanda Stock Exchange (RSE). Kenya Airways and East Africa Breweries Limited are listed in both the USE and DSE, while Jubilee Holdings, Centum, and Equity Bank are listed in the USE only.

### 1.1.1 Cross Listing

Cross-listing refers to the listing of ordinary shares of a firm on a different exchange other than its home stock exchange. It is therefore where a firm lists its shares for trading on at least two stock exchanges located in different countries (Onyuma et al 2012). Companies cross-list through one of two approaches: Depository Receipts, or Ordinary Listing.

In Ordinary Listing, a company lists is ordinary shares on a different exchange other than its home stock exchange. Depositary Receipts are negotiable financial securities representing publicly traded security - equity (usually) or debt - of a company listed in one market which is traded on another market. Of the two approaches, ordinary listing is less attractive due to stringent requirements that are attached to it. Such a receipt therefore allows investors to hold shares in equity of other countries without need to go directly into the foreign markets (Adelegan, 2009).

### 1.1.2 Share Returns

Industrial economists typically assume that firms maximize the discounted value of profits. Financial economists typically assume that firms maximize shareholder value Sch90. Miller and Rock (1985) and Stein (1989) show that the assumption by Industrial Economists, and that by Financial Economists, are not equivalent when information is imperfect because, under imperfect information, firms may have the ability to enhance investor perceptions (and thus the share price) even without

actually increasing the discounted value of profits. However, where there is perfect information, these two assumptions equivalent.

The value of an investment in a quoted firm is the product of its share's quoted price and the number of shares acquired. The return on an investment is the change in the value of the investment as a proportion of the value of the initial investment. Share returns have been measured by a number of scholars using the market model Ola09 where abnormal returns for securities are determined. It is imperative for investors to pay due attention to the factors that influence share prices as this could help them in making wise investment decisions and invest in stocks that yield good returns.

### 1.1.3 Cross Listing and Share Returns

According to Fama(1970), in an efficient market, all information affecting the value of a security isimmediately reflected in its market price. In an efficient market therefore, the information content of the announcement by a company of its decision to cross-list may lead to changes in share prices. If market evaluates the information and expect the cross-listing to lead to increased value, the firm's share returns are going to be positive as its price adjusts upwards to the new valuation, while an evaluation that the cross-listing will lead to reduced value will result in negative returns.

Results of studies conducted on the effect of cross-listing have been diverse, with different resultant hypotheses to explain the valuation effects. Merton (1987) puts forth the visibility/investor recognition hypothesis, which argues that increased visibility and investor recognition occasioned by cross-listing increased investor base and resulted in lower expected returns, and hence increased the firm value. The segmentation hypothesis, presented by Alexander, Eun, and Janakiramanan (1987),

predicts that due to market integration, stock prices will rise. As a result, market capitalization will increase before cross-listing, and firm assets will increase after cross-listing. Domowitz, Glen, and Madhavan (1998) put forward the analyst coverage hypothesis, which predicted that increase in trading activity as a result of the cross-listing, induced entry of analysts. This reduced base level volatility, because opening prices were more informative positive valuation effects. Doidge, Karolyi, Lins, Miller, and Stulz (2009) suggest that controlling shareholders of cross-listed firms cannot extract as many private benefits from control compared to controlling shareholders of firms that are not cross-listed, and cross-listed firms are better able to take advantage of growth opportunities. Consequently, the cross-listed companies should be the ones whose interests are better aligned with those of minority shareholders. Better protection of minority shareholders of cross-listed companies might be another advantage of entering a foreign market. In this study, it is expected that cross-listing will have a positive relationship with share returns of the listed firms and a negative one on the share returns of matched peers.

### 1.1.4 The Nairobi Securities Exchange

The Nairobi Securities Exchange was registered in 1954 as a voluntary association of stockbrokers registered under the Societies Act. Business was conducted by resident Europeans only until 1963 when Kenya attained independence from Britain. Before 1963, there were about 10 listed companies. Activity at the stock market slumped at the dawn of Kenya's independence due to uncertainty about Kenya's economic future. However, the first three years of independence were marked by steady economic growth and the restoration of confidence in the market, with the result that the NSE handled a high number of subscriptions of public issues Kin90.

The NSE Index was first computed in 1966, starting by measuring the daily average price changes in 17 companies that were considered the most active stocks in the market. It was computed as a weighted average of price changes in the selected stocks and 1966 was used as the base year and set at 100 points Gra05. The 1970s saw about 20 more companies listed on the NSE. The introduction of a 35% Capital Gains Tax in 1975 led significant losses to the NSE, which was already suffering from the effects of the inflation that had been caused by the oil crisis. The nationalization and compulsory acquisition of companies quoted or subsidiaries of companies quoted at the NSE by Tanzania and Uganda, introduction of exchange controls and introduction of inter-territorial restrictions among the East African countries further impacted the NSE negatively.

The 1980s and 1990s saw significant changes in the NSE. Significant structural reforms were conducted in the 1980s, including the establishment of the Capital Markets Authority (CMA) in 1989 as a regulatory body that would enable the development of Kenya's capital markets and the creation of a conducive environment for economic growth. This was as a result of a study titled "Development of Money and Capital Markets in Kenya", conducted in 1984 by the Central Bank of Kenya in conjunction with the International Finance Corporation (IFC). In 1995, the government made changes with regard to the restrictions on foreign ownership of local companies from an aggregate limit of 20% and an individual limit of 2.5% to 40% and 5%. The Exchange Control Act was repealed, seven more brokers were licensed, increasing the total to twenty brokers, and rates of commission were reduced from 2.5% to between 2% and 1% for equities and 0.05% for fixed interest securities.

In 2000, Kenya, Uganda and Tanzania signed the Joint Stock Exchange Taskforce report on cross border listing. Subsequently, the East African Breweries Ltd. and the

Kenya Airways proceeded to cross list at the Kampala and Dar es Salaam Stock Exchanges. Gra05. As at December 2013, the Nairobi Securities Exchange (NSE) had 61 listed companies categorized under 11 sectors. Of the listed companies, 8 of which were cross-listed within East Africa. Nation Media Group and Kenya Commercial Bank are listed in the Uganda Securities Exchange (USE), the Dar-es-salaam Stock Exchange (DSE), and the Rwanda Stock Exchange (RSE). Kenya Airways, Uchumi Supermarkets and East Africa Breweries Limited are listed in both the USE and DSE, while Jubilee Holdings, Centum, and Equity Bank are listed in the USE only. While some firms have cross-listed, others have not and it is important to examine whether there is any value for firms to cross-list and whether those that fail to cross-list suffer when their peers opt to.

## 1.2 Research Problem

According to the modified Efficient Market Hypothesis by Jensen (1978), a decision by a firm to cross-list will cause an adjustment to the quoted price of its stock to adjust to the information content in the decision. A positive return as a result of upward adjustment on the prices is expected should the information content be positive, hence leading to expectations of higher discounted cash flows. Should the information content lead to expectations of lower discounted cash flows, the decision will result in negative stock returns.

Within the securities exchanges in the East Africa region, the Nairobi Securities Exchange has had the highest number of firms listing in the security exchanges of other East Africa member states. Between 2001 and 2015, 8 companies whose primary listing is in the Nairobi Securities Exchange have listed in the security exchanges of other East Africa member states, compared to one from Uganda Stock Exchange , which has listed with the Nairobi Securities Exchange, and none from the

other member states. The planned regional integration in East Africa to create a single monetary union, and the announcements of plans by companies that are already cross listed to list in other stock exchanges within the East Africa region is of interest to finance academicians as well as practitioners seeking to understand how cross-listing affects firm value, as well as the state of competition within industries.

Globally, Adelegan (2009) performed an event study of the effect of cross-listing on firm value in Sub-Saharan Africa between 1992 and 2008. The study found that there is a positive announcement period effect, followed by normal post cross-listing performance. The study concluded that regional cross-listing increased firm value. Some studies have also been carried out in Kenya. For instance, Onyuma, Mugo, and Karuiya (2012) undertook a study to examine whether cross-border listing affects firm's financial performance in Eastern Africa. The study found some evidence that firms benefit from cross listing in terms of better liquidity and confidence. Waweru, Pokhariyal, and Mwaura (2012) examined the effects of cross-listing on value of stocks and showed that cross-listed firms were valued higher than non-cross-listed firms. Wanjiru (2013) examined the relationship between cross-listing and liquidity for listed firms in Kenya and found that cross-listing does not improve liquidity of cross-listed securities. Kirop (2013) examined the effect of cross-listing on value of listed firms in Kenya and found that cross-border listing increases the value of listed firms. Makau, Onyuma, and Okumu (2015) also examined the effect of cross-listing on liquidity of firms listed in Kenya and revealed that cross-listing does not affect liquidity of stocks.

While the benefits to the cross-listed company have been studied, very little has been done on how cross-listing affects the value of rival firms. In Kenya, this issue has not been investigated. This is the gap the present study seeks to bridge. Further, the

results on the effect of cross-listing on value of firms are mixed. This offers an opportunity for more studies to examine this relationship using different methodologies. This study sought to answer the questions: how does cross-listing affect the share returns of cross-listed firms and their non-cross-listed peers?

## 1.3 Research Objectives

The objective of this study was to examine the effect of cross-listing on share returns.

## 1.4 Value of the Study

This study is important to the management of both cross-listed and non-cross-listed firms in Kenya. Management will benefit from the findings of this study since it will provide information that will guide their decisions when assessing their industry position as well as better inform the decision to cross-list or not. Management of rival firms with those cross-listed will find this study an invaluable source as it will show them whether they should strategically respond when their peers cross-list.

Secondly, this study will be important to policy makers and regulators of stock markets. The research findings will add to the information that policy makers have to facilitate decisions regarding the regulation of the respective securities exchanges as well as integration of the financial markets of the East Africa Community member states. Should the results show a detrimental effect on the parent market when firms cross-list, this will be a course of concern for the regulators and policy makers.

Thirdly, the study will be important to academicians and researchers. The academicians and researchers will use findings as a reference to further research in assessing competitive advantage of cross listings, among other factors, which has yet to be explored in depth. The research will also contribute to the body of knowledge in

finance especially in providing the evidence on how rival firms are affected by cross-listing.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

This chapter presents a review of the theoretical issues and empirical studies on the valuation of firms, and cross listing.

## 2.2 Theoretical Literature

This section discusses five theories that may explain why firms in Kenya cross-list on other stock exchanges across East Africa. These theories are market segmentation theory, liquidity theory, investor recognition theory, proximity preference theory, and business strategy theory.

### 2.2.1 Market Segmentation Theory

Stapleton and Subrahamanyan (1977) were among the first to discuss cross-listing phenomena. They suggest that a firm domiciled in a segmented market may overcome segmentation barriers and, accordingly, inefficiencies in asset pricing, by cross-listing in a foreign market. Market segmentation can be caused by various types of market imperfections including regulatory investments' restrictions and taxes.

Several theoretical models predict equilibrium capital market prices in the presence of investment barriers. Black (1974) showed that taxes on asset holdings by foreign investors might explain the deviation of asset prices from the expected level and also the bias of investors towards domestic stocks. Errunza and Losq (1985) examined the impact of regulatory restrictions that result in the inability of some investors to trade a subset of securities (ineligible securities) and predict a risk premium on ineligible securities, which is a function of the differential risk aversion of restricted and unrestricted investors.

Eun and Janakiramanan (1986) model that incorporates legal foreign ownership restrictions also predicts a risk premium over the “no-constrains equilibrium price” for restricted (domestic) investors and a discount for unrestricted (foreign) investors. Extending the work of Stapleton and Subrahamanyan (1977), Alexander, Eun, and Janakiramanan (1987) view a foreign listing as the initial stage of capital market integration that produces the “externality effect” of indirectly integrating domestic and foreign capital markets. Their model demonstrates that expected returns are lower when a security is cross-listed, assuming that stock prices are less positively correlated between different countries than they are within a single country.

Cross-listing makes a firm's stocks accessible to investors who would otherwise find it less advantageous to hold the stocks because of investment barriers. In turn, improved stock investability increases the shareholder base and risk sharing and, thus, should lead to lower cost of equity capital and higher stock valuation. This theory is relevant to the present study as it explains that Kenyan firms may choose to cross-list in other stock markets in order to over-come market segmentation.

### 2.2.2 Liquidity Theory

Poor stock market liquidity is one of the deficiencies of a market segmented from global financial markets that could be mitigated by cross-listing. Improved stock liquidity is often cited by corporate managers as one of the main motives to cross-list (Houston and Jones, 2002; Bancel and Mittoo, 2001, 2009). Cross-listing increases trading hours and the number of traders that have economic interest in the stock and, therefore, facilitates competition among traders. This, in turn, potentially reduces bid-ask spreads and stimulates trading in the home market. Amihud and Mendelson (1986) suggest that stock liquidity is an important factor in pricing assets and show that expected asset returns is an increasing and concave function of the bid-ask

spread. Thus, financial policies that improve stock liquidity, such as cross-listing, should translate into a lower cost of equity capital and higher stock valuation through a reduced illiquidity premium (i.e. a component of trading cost).

According to liquidity theory, cross-listing improves stock liquidity, therefore leading to positive valuation effects. This theory is relevant to this study as it can explain that firms in Kenya cross-list in order to improve their liquidity.

### 2.2.3 Investor Recognition Theory

Merton (1987) developed a model of capital market equilibrium that relaxes the assumption of equal information availability and assumes that investors know only about a subset of securities. In this case, expected returns depend not only on market risk but also on the costs of incomplete information. The Sharpe-Lintner capital asset pricing model does not price firm-specific risk since it can be eliminated via diversification.

The direct measure of investor recognition is the size of the firm's investor base (Merton, 1987; Foerster and Karolyi, 1999). Therefore, the improvement in investor recognition after cross-listing and, accordingly, the success of cross-listing, can be evidenced by the changes in the firm's ownership structure towards an increase in foreign ownership. There is abundant empirical evidence in the literature that investors tend to invest in foreign stocks that cross-list in the investors' home market over the foreign stocks that do not (Ferreira and Matos, 2008; Aggarwal et al., 2005; Ammer et al., 2012). This suggests that cross-listing makes a stock more appealing to investors in the foreign market and facilitates widening of the investor base of the cross-listed firm.

Alternatively, investor recognition can be measured by the degree of investors' awareness of the firm. Investors become aware of a foreign firm when they hear about it in the media or from financial analysts in their home market. Cross-listing is one of such corporate events that facilitate attention from media and analysts in the foreign market where the firm cross-lists (Baker et al., 2002; Lang et al., 2003; Lee and Valero, 2010). In contrast, Abdallah (2008) finds no evidence of an increase in the number of financial analysts or the forecast accuracy of financial analysts after cross-listing in the USA but does find evidence of increased financial analysts' coverage after cross-listing in London. Overall, empirical evidence confirms that cross-listing is associated with increased attention from financial analysts and media in the foreign country, which improves foreign investors' awareness and recognition of cross-listed firms.

Investor recognition theory also predicts that the increase in the investors' recognition after cross-listing should lead to higher market valuation (Merton, 1987). Overall, the literature provides empirical evidence that cross-listing improves investor recognition, resulting in a positive change in value of the firm (Baker et al., 2002; Lang et al., 2003; King and Segal, 2009; Bancel et al., 2009). This theory is relevant in this study as it can be used to explain that firms in Kenya cross-list in order to increase their recognition by investors.

### 2.2.4 Proximity Preference Theory

This theory argues that the greater the level of proximity (geographic, cultural, economic or industrial) between the home and foreign markets, the higher the probability of cross-listing in the foreign market. Familiarity with the cross-listing firm, or with the country of the firm's origin, provides an information advantage to

investors and, therefore, increases their willingness to invest. Firms anticipate this and will choose to cross-list in foreign markets where investors have a significant amount of relevant information about them. On a similar line, Dodd et al. (2013) argue that firms tend to cross-list in countries that are culturally similar to their home country, as investors are unwilling to invest in firms from culturally dissimilar markets and managers may seek to avoid potential conflicts with culturally disparate investors and managers. This may imply that managers do not necessarily exhibit a behavioral bias in their cross-listing decisions and choose a host country that is similar to their home country in order to maximize the benefits from cross-listing in terms of increase in shareholder base and effective collaboration between managers and shareholders.

First, proximity preference theory implies that the choice of the host market for cross-listing is determined by the level of proximity between the home and host countries. Empirically, large, export-oriented firms, which are better known to foreign investors through consumer markets and media coverage, have a higher propensity to cross-list (Saudagaran and Biddle, 1995; Pagano et al., 2002). Regarding familiarity with the firm's home country, Sarkissian and Schill (2004) show that geographical, cultural, economic and industrial proximity between the home and host countries are important determinants of the choice of the destination market for cross-listing. Dodd et al. (2013) find that firms from developed countries tend to cross-list in countries that are culturally similar to their home countries. In addition, Daugherty and Georgieva (2011) show that cultural distance between the home and host countries is a significant determinant of a decision to delist from the US markets.

Second, proximity preference theory implies that the level of proximity between the home and foreign countries may affect the valuation benefits of cross-listing. While

investor recognition theory implies the greatest valuation gains occur when the host market is least familiar, due to the need to overcome higher information barriers, proximity preference theory implies the greatest gains occur when the host market is most familiar.

This theory is relevant in this study as it can explain that firms in Kenya cross-list in those markets that are in close proximity to the Kenyan market such as Uganda, Tanzania and Rwanda.

### 2.2.5 Business Strategy Theory

Managerial surveys and the literature on the determinants of cross-listing decisions indicate that cross-listing is often an integrated part of the firm's global business strategy (King and Mittoo, 2007). Firms may seek to cross-list in foreign markets for a variety of reasons related to the firm's corporate strategy, including to align the firm's investor base with the global profile of the firm's operations, to signal markets (including consumer markets) that the firm has become a global player, to provide better access to customers and suppliers, to gain access to foreign capital markets needed to finance global investment opportunities, to facilitate mergers and acquisitions activities in foreign markets and to follow industry peers in order to maintain the firm's competitive position within the industry (Tolmunen and Torstila, 2005). The benefits from cross-listing are, therefore, associated with the success of the firm's global strategy and whether the cross-listing has contributed to achieving this success.

First, according to business strategy theory, the decision to cross-list is related to firm-specific factors. Empirically, Pagano et al. (2001) report that firms tend to cross-list on markets where their industry peers are listed, in order to “be with your

peers." This, arguably, helps firms to maintain their competitive position in their industry (Pagano et al., 2001; Mittoo, 2003). Bancel and Mittoo (2001) find that internationally oriented firms with a significant degree of foreign operations tend to cross-list their shares in foreign markets.

Second, business strategy theory predicts that the valuation effects of cross-listing are determined by firm-specific factors. Mittoo (2003) and Dodd and Louca (2012) show that firms from a wide range of industries cross-list in the USA and the valuation effects from cross-listing differ significantly across industries. This could be because some industries are better understood in the foreign market than others or because in some industries there is a greater peer pressure to list in particular foreign markets (Mittoo, 2003). Dodd and Louca (2012) report that firms from the natural resources, high-tech and manufacturing industries experience significantly higher abnormal returns around a US cross-listing than firms from other industries.

Finally, cross-listing enhances the firm's visibility in the host country where the firm is planning expansion via mergers and acquisitions and provides the firm with an acquisition currency, a foreign exchange-listed security that is valid in the foreign country to pay for acquisitions in that country. Empirically, there is evidence that non-US firms cross-listed in the USA are significantly more active in acquiring US firms (Tolmunen and Torstila, 2005; Tagliavini, 2008) and, compared to their domestically listed peers, pay less by using US-listed equity rather than cash (Burns, 2004). The theory is relevant in this study as it can explain that firms in Kenya cross-list as part of their business strategy.

## 2.3 Empirical Literature

Studies have examined cross-listing of firms both globally and locally. Globally, Brockman and Chung (1999) examined the liquidity differences between Hong Kong companies that choose to cross list on the London Stock Exchange. The study compared bid-ask spreads over sixteen month period using intra-day observations. The results showed that cross-listing improves liquidity of cross-listed stocks.

Bhana (2000) examined the impact of overseas listing on Johannesburg Stock Exchange and shareholder wealth. The study used event study methodology with the event window being 25 days before and after cross listing on a sample of 35 South African listed stocks on the London Stock Exchange. The study found that cross-listing improves the value of cross-listed stocks as well as the volatility of returns of the cross-listed stocks.

Alaganar and Bhar (2004) examined the impact of international listing on return distribution. The study used intervention analysis on 15 stocks on New York Stock Exchange and NASDAQ. The results showed that while dual listing might offer any benefits, it tends to be firm-specific. Thus, some firms will tend to gain from cross-listing while others will not.

Smirnova (2004) examined the impact of cross-listing on returns of firms. The study used event study methodology with the event window being 25 days before and after cross-listing. The results showed that volatility of stock returns increased after cross-listing. This suggests that there are benefits for firms cross-listing in terms improved stock returns.

Bayar and Onder (2005) examined the effect of cross-listing on volatility of stocks using event study methodology. The event window was not clear from the study. The

results showed that the volatility of stocks increases and liquidity declines for most stocks after cross-listing. This suggests that cross-listing may not be beneficial to some firms as their liquidity may decline.

Koulakiotis, Angelidis, Tolikas, and Molyneux (2006) examined the impact of cross-listing on stock volatility. The study used event study methodology. The event window was 12 years. The study used a modified GARCH model. The results showed that information spillover effects are important for cross-listed equities. The results also showed that a different regulatory environment may impact on symmetric information spillovers.

Bris, Cantale, and Nishiotis (2007) examined the valuation effects of international cross-listings using the event study methodology. The event window was not clear from the study. The study found that there is a statistically significant increase in liquidity after cross-listing. This study suggests, therefore, that cross-listing by firms may not gain anything in terms of value by cross-listing on other stock markets outside their home.

Bianconi and Tan (2008) examined the effect of cross-listing on firm valuations using mean difference tests, OLS, random effects and treatment effects regressions. The study found evidence of cross-listing premium for both UK and US markets. This means that cross-listing in UK and US stock markets may be beneficial to firms. This can be attributed to the fact that firms cross-listing in UK and US markets are considered.

Melvin and Valero (2009) examined the impact of stock prices of cross-listed firms on home-market rival firms. This was an event study but the event period was not clear from the study. The study found that rival firms are hurt by cross-listing. This is

the study from which the present study gets the motivation to examine this phenomena in Kenya.

Adelegan (2009) examined the impact of regional cross-listing of stocks on depth of stock markets in Sub-Saharan Africa. The study used an event study methodology. The results showed that regional cross-listing improves stock market deepening and that stock markets of countries with regional cross-listings perform better than those without.

O'Connor (2009) studied the effect of cross-listing on value of firms in emerging markets. The study used pooled OLS and treatment effects regressions from 1990 to 2003. The results showed that Cross-listing for firms from low-disclosure regimes in the USA do not offer value to the firms. The study revealed that cross-listing gains accrue for firms from high-disclosure regimes but only after listing for at least 5 years.

Roosenboom and van Dijik (2009) examined market reactions of cross-listings. The study used event study methodology using a sample of 526 cross-listings from 44 countries from 1982 to 2002. The study found that destination markets influence the effects of cross-listings on value creation. This suggests the existence of premiums on some markets.

Cetorelli and Peristiani (2010) examined the valuation impact of listing on a more or less prestigious stock exchange relative to domestic market. The study used a sample of 45 countries from 1990 to 2006. The results showed that firms cross-listing in a more prestigious market enjoy significant valuation gains over the five-year period following the listing. The results also showed that firms cross-listing in a less

prestigious market experience a significant decline in valuation over the five years following listing.

Li, Yi, and Su (2011) examined the spillover effects of Chinese cross-listed companies. The study used event study methodology using vector autoregressive (VAR) model on ten cross-listed stocks in US, Shanghai and Hong Kong markets. The study found unidirectional spillover effect from US market to Shanghai market and a bidirectional effect between Hong Kong and US markets. Further, the study found evidence of same day return effect from Shangai to Hong Kong market and from Hong Kong to US market.

Foucault and Fresard (2012) examined the effect of cross-listing on investment-to-price sensitivity. The study used OLS regression model on a sample of 1,468 cross-listed forms and 20,027 non-cross-listed firms from 1989 to 2006. The study found that cross-listed firms in US have higher investment-to-price sensitivity than firms that never cross-list. This shows that the US market might have some premium and hence listing on it guarantees returns for firms.

Ndubuisi (2013) examined the impact of cross-listing on returns. The study used the event study methodology on a sample of 31 Canadian firms cross-listed on Frankfurt Stock Exchange from 1989 to 2003. The results showed that Canadian stocks react negatively to cross-listing. This suggests that cross-listing in Canada for purposes of gaining better returns is not beneficial. Firms may be cross-listing simply because they seek to improve their visibility.

Liao and Yu (2013) examined the price and liquidity effects of switching exchange listings. The study used an event study methodology on 224 firms that changed their trading marketplace from GreTai Securities Market to the Taiwan Stock Exchange.

The results showed that transfer stocks in Taiwan convey information about permanent improvements in liquidity rather than better earnings prospects.

Locally, a few studies have also examined this issue of cross-listing. Waweru, Pokhariyal, and Mwaura (2012) examined the effect of cross-listing on values of stocks in Kenya. The study used an event study methodology but the event window was not clear from the study. The study also used a pooled and panel regression methodology to examine the relationship between cross-listing and value of stocks. The study found that cross-listed firms were valued higher than non-cross-listed firms. Thus, this study focused on comparing the value of cross-listed with the non-cross-listed firms and not whether cross-listing influenced the value of peer firms and if so, how it did. This offers a gap that is addressed in the present study.

Onyuma, Mugo, and Karuiya (2012) examined the effect of cross-listing on the financial performance of firms in Kenya. The study used an event methodology where the event window was 3 years before and after cross-listing on a sample of three cross-listed stocks. The study found no clear evidence of improved value except for investor confidence. As noted, the study does not examine how cross-listing influences the value of rival firms and therefore offers a gap for more studies on this relationship to be examined.

Wanjiru (2013) examined the relationship between cross-listing and liquidity of listed firms in Kenya. The study employed an event study methodology where the event period was 6 months before and after cross-listing on a sample of eight stocks. The results showed that cross-listing does not improve liquidity of cross-listed securities. As is clear from the study, the focus was on how liquidity of cross-listed stocks was

influenced by cross-listing. The study did not address whether cross-listing influences firm value.

Kirop (2013) examined the effect of cross-listing on value of firm. The study used an event study methodology with an event window of 120 days before and 41 days after cross-listing on a sample of seven listed stocks. The results showed that cross-listing increased the value of firms. This study, however, did not examine how cross-listing influences stocks of rival firms and therefore offers a gap for this issue to be examined in the present study.

Makau, Onyuma, and Okumu (2015) examined the impact of cross-listing on liquidity of firms. The study used an event study methodology where the event window was twelve months before and after cross-listing on four cross-listed stocks in Kenya. The results showed that cross-listing does not affect liquidity of stocks. Again, this study did not examine how cross-listing affects firm value and therefore offers a gap for more on the impact of cross-listing to be examined.

## 2.4 Summary of Literature

This chapter has reviewed both theoretical and empirical literature. The second part has reviewed empirical studies on the effects of cross-listing (see appendix III for summary). The results show that cross-listing influence value of firms, liquidity, and stock volatility. Some show that cross-listing does not affect firm value while others show negative relationships. These are mixed results and it is not clear how cross-listing affects rival firms. Various methodologies have been employed for studies testing the effect of cross-listing on value of stocks and no study in Kenya has examined how cross-listing influences the value of rival firms. This presents a gap in literature that the present study seeks to bridge.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter deals with the research design, population, sample, data collection and data analysis, which describes the firms and variables included in the study and applied statistical techniques in investigating the effect of cross-listing on share returns for listed firms in Kenya.

## 3.2 Research Design

The research design adopted in this study is the experimental research design. Given that the purpose of this study was to examine the effect of cross-listing on share returns, this is the most appropriate design for the study. According to Cooper and Schindler (2000), an experimental study attempts to predict an effect on one variable by manipulating another variable while holding all other variables constant.

## 3.3 Target Population of the Study

According to Cooper and Schindler (2000), a population is the total collection of elements about which we wish to make inferences. All the 64 companies listed at the Nairobi Securities Exchange (see appendix I) have been selected as the test population for this study.

## 3.4 Sample Design

From the 64 listed firms, only 8 firms are currently cross-listed. Thus, the study focused on the 8 cross-listed firms. Further, 8 other firms were selected from the list of remaining firms in order to come up with a paired sample of eight firms to the cross-listed ones. Pairing was based on the industry of the firm and size in terms of asset base. Thus, the final sample size for this study was 16 listed firms – eight cross-listed and eight non-cross-listed firms. The matched pairs acted as the control group in the study. During the data collection period, one firm was dropped for lack of data for

the period prior to cross-listing. Consequently, the number of firms in the experiment group, as well as that in the control group, was revised downwards to seven.

### 3.5 Data Collection

This study used secondary data obtained from the NSE Secretariat. Specifically, data was gathered on share prices of firms selected for the study for an 8-year period (3 years before and 5 years after the cross-listed firms did so). The interest in this study is on how share prices are affected by listing and, therefore, only share prices were examined. This data is available from the various NSE Handbooks that cover data from 2003 to 2015. Other descriptive data such as assets was collected from the same booklets. Annual returns data was used.

### 3.6 Data Analysis

First, descriptive analysis was used to describe the data in terms of mean scores and standard deviations among other descriptive statistics. In order to examine the effect of cross-listing on share revenues, independent t-test was employed to test the differences between share returns before and after cross-listing. The analysis was aided by STATA version 12 analysis software. The cross-listed firms (appendix II) was matched with their non-cross-listed peers from appendix I. Then, the abnormal returns was calculated for both the cross-listed and the matched pair. The ANOVA was then run to examine the differences between annual abnormal average returns of non-cross-listed vs. cross-listed peers before and after the cross-listing occurred.

# CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND DISCUSSION

## 4.1 Introduction

This chapter presents the results of the data analysis. A total of seven cross-listed companies (called the experimental group) were examined three years before cross-listing and five years after cross-listing. These were matched with seven other companies (called the control group). The chapter is structured as follows. First, the results of the descriptive analysis are presented. Then, the multivariate results are shown where the ANOVA results are shown. Finally, the chapter concludes with a discussion of findings.

## 4.2 Data Analysis

Actual returns for each period were evaluated using the share prices obtained from the NSE handbooks for the respective period, with the period in which the firm cross-listed being the base period. Tables 1 and 2 show the actual returns of the firms under review for the period of the study.

**Table 1: Actual returns of experiment group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| KCB:T=2008 | (0.52) | 0.03 | 0.21 | 0.00 | (0.13) | (0.07) | (0.28) | (0.45) | 1.01 |
| Equity:T=2009 | (0.03) | 0.05 | 0.23 | 0.00 | 0.86 | (0.89) | (0.83) | (0.79) | (0.65) |
| NMG:T=2010 | 0.95 | (0.14) | (0.29) | 0.00 | (0.16) | 0.28 | 0.87 | 0.88 | (1.00) |
| Centum:T=2010 | 0.71 | 0.60 | (0.34) | 0.00 | (0.13) | (0.21) | 1.12 | 2.91 | (1.00) |
| Jubilee - 2006 | (0.85) | (0.82) | (0.74) | 0.00 | (0.34) | (0.62) | (0.64) | (0.43) | (0.52) |
| KQ - 2004 | (0.24) | (0.29) | (0.40) | 0.00 | 1.50 | 9.94 | 8.90 | 1.97 | 2.91 |
| EABL - 2005 | (1.00) | 0.52 | 1.99 | 0.00 | (0.07) | 0.03 | 0.34 | (0.03) | 0.21 |
| Average | (0.14) | (0.01) | 0.09 | 0.00 | 0.22 | 1.21 | 1.35 | 0.58 | 0.14 |

**Table 2: Actual returns of control group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| Barclays:T= 2008 | 4.21 | 0.52 | 0.56 | 0.00 | (0.11) | 0.24 | (0.74) | (0.69) | (0.65) |
| Stanchart:T=2009 | 0.27 | 0.28 | (0.01) | 0.00 | 0.60 | (0.01) | 0.46 | 0.89 | 1.08 |
| SGL:T=2010 | 0.25 | 0.10 | (0.16) | 0.00 | (0.45) | (0.52) | (0.43) | (0.26) | (1.00) |
| Olympia:T=2010 | (1.00) | 0.68 | 0.09 | 0.00 | (0.15) | (0.34) | (0.39) | (0.13) | (1.00) |
| Pan Africa:T=2006 | (0.74) | (0.77) | (0.56) | 0.00 | 0.09 | (0.32) | (0.51) | (0.28) | (0.77) |
| TPS:T=2004 | (0.64) | (0.60) | (0.42) | 0.00 | 0.71 | 0.83 | 0.21 | 0.11 | (0.05) |
| BAT:T=2005 | (1.00) | 0.35 | (0.02) | 0.00 | (0.03) | (0.32) | (0.36) | (0.13) | 0.32 |
| **Average** | **0.19** | **0.08** | **(0.07)** | **0.00** | **0.09** | **(0.06)** | **(0.25)** | **(0.07)** | **(0.30)** |

To determine expected returns, market returns were first determined for each period using the NSE 20 Share Index values obtained from the NSE handbooks for the respective period, with the period in which there was a cross-listing being the base period (period T). Betas for each company were then determined and applied to the respective company's market return to arrive at the expected return. Tables 3 and 4 show the betas for the experiment and control groups respectively.

**Table 3: Betas for the experiment group**

| Company | Stock beta |
|---|---|
| KCB - 2008 | 106.26 |
| Equity - 2009 | 85.73 |
| NMG - 2010 | 87.90 |
| Centum - 2010 | 16.74 |
| Jubilee - 2006 | 86.42 |
| KQ - 2004 | 38.29 |
| EABL - 2005 | 101.66 |

**Table 4: Betas for the control group**

| Company | Stock beta |
|---|---|
| Barclays - 2008 | 76.95 |
| Stanchart - 2009 | 64.07 |
| SGL - 2010 | 12.81 |
| Olympia - 2010 | 2.13 |
| Pan Africa - 2006 | 29.67 |
| TPS - 2004 | 24.79 |
| BAT - 2005 | 53.00 |

The expected returns of the experiment and control groups are shown on tables 5 and 6 respectively.

**Table 5: Expected returns of experiment group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| KCB:T=2008 | (12.09) | (39.93) | (37.54) | 0.00 | 8.96 | (21.85) | 10.48 | (15.73) | (30.32) |
| Equity:T=2009 | (36.38) | (34.60) | (6.66) | 0.00 | (22.92) | 1.13 | (18.37) | (29.22) | (31.28) |
| NMG:T=2010 | (16.34) | 22.75 | 32.08 | 0.00 | 33.67 | 6.37 | (8.82) | (11.69) | 0.00 |
| Centum:T=2010 | (3.11) | 0.00 | 6.11 | 0.00 | 6.41 | 1.21 | (1.68) | (2.23) | 0.00 |
| Jubilee - 2006 | 91.65 | 79.08 | 36.28 | 0.00 | 3.11 | 63.52 | 63.70 | 23.56 | 65.68 |
| KQ - 2004 | 44.94 | 44.47 | 2.91 | 0.00 | (9.90) | (18.29) | (17.57) | (6.26) | (3.56) |
| EABL - 2005 | 194.71 | 45.88 | 35.46 | 0.00 | (30.06) | (27.48) | 22.57 | 22.72 | (10.54) |

**Table 6: Expected returns of control group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| Barclays:T= 2008 | (8.75) | (28.92) | (27.19) | 0.00 | 6.49 | (15.82) | 7.59 | (11.39) | (21.96) |
| Stanchart:T=2009 | (27.18) | (25.86) | (4.98) | 0.00 | (17.13) | 0.85 | (13.73) | (21.84) | (23.37) |
| SGL:T=2010 | (2.38) | 3.32 | 4.68 | 0.00 | 4.91 | 0.93 | (1.29) | (1.70) | 0.00 |
| Olympia:T=2010 | (0.40) | 0.00 | 0.78 | 0.00 | 0.82 | 0.15 | (0.21) | (0.28) | 0.00 |
| Pan Africa:T=2006 | 31.46 | 27.15 | 12.45 | 0.00 | 1.07 | 21.81 | 21.87 | 8.09 | 22.55 |
| TPS:T=2004 | 29.09 | 28.78 | 1.88 | 0.00 | (6.41) | (11.84) | (11.38) | (4.05) | (2.30) |
| BAT:T=2005 | 101.51 | 23.92 | 18.49 | 0.00 | (15.67) | (14.33) | 11.77 | 11.84 | (5.50) |

Abnormal returns were then determined by comparing the actual returns against the expected returns of each firm. These are shown on tables 7 and 8.

**Table 7: Abnormal returns of the experiment group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| KCB:T=2008 | 13.16 | 39.91 | 37.37 | 0.00 | (8.81) | 21.93 | (10.09) | 16.55 | 29.82 |
| Equity:T=2009 | 36.41 | 34.56 | 6.48 | 0.00 | 22.46 | 6.62 | 23.41 | 32.89 | 33.15 |
| NMG:T=2010 | 15.85 | (22.59) | (31.66) | 0.00 | (33.47) | (6.59) | 8.35 | 11.22 | 0.00 |
| Centum:T=2010 | 2.69 | (0.38) | (5.59) | 0.00 | (6.25) | (0.95) | 1.15 | 1.48 | 0.00 |
| Jubilee - 2006 | (86.19) | (74.51) | (33.39) | 0.00 | (2.60) | (61.90) | (61.89) | (22.80) | (64.60) |
| KQ - 2004 | (44.63) | (44.06) | (2.24) | 0.00 | 9.30 | 17.39 | 16.68 | 5.60 | 2.81 |
| EABL - 2005 | (194.71) | (46.22) | (36.13) | 0.00 | 30.13 | 27.45 | (22.82) | (22.69) | 10.36 |

**Table 8: Abnormal returns of the control group**

| Company | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | T+4 | T+5 |
|---|---|---|---|---|---|---|---|---|---|
| Barclays:T= 2008 | 7.94 | 28.57 | 26.82 | 0.00 | (6.36) | 15.63 | (4.72) | 13.60 | 23.82 |
| Stanchart:T=2009 | 26.97 | 25.64 | 4.99 | 0.00 | 16.75 | (0.84) | 13.41 | 21.37 | 22.85 |
| SGL:T=2010 | 2.18 | (3.41) | (4.48) | 0.00 | (4.09) | 0.16 | 2.04 | 2.05 | 0.00 |
| Olympia:T=2010 | 0.40 | (0.41) | (0.86) | 0.00 | (0.64) | 0.37 | 0.84 | 0.43 | 0.00 |
| Pan Africa:T=2006 | (28.57) | (23.79) | (11.17) | 0.00 | (1.15) | (21.33) | (20.83) | (7.69) | (19.14) |
| TPS:T=2004 | (27.31) | (27.30) | (1.15) | 0.00 | 5.99 | 11.39 | 11.21 | 3.95 | 2.35 |
| BAT:T=2005 | (101.51) | (24.18) | (18.47) | 0.00 | 15.71 | 14.79 | (11.21) | (11.70) | 5.25 |

### 4.3 Descriptive Analysis

Table 9 shows the descriptive results for the asset values of the experiment group (cross-listed firms) and the control group (non-cross-listed firms). The experiment group had a higher mean and median than the control group. This suggests that over the period of study, the experiment group was larger in size than the control group despite them being peers in the same industry and with almost similar asset base at the beginning of the period.

**Table 9: Descriptive statistics**

| | Experiment Group | Control Group |
|---|---|---|
| Mean | 72,343,232.01 | 47,678,072.95 |
| Median | 26,788,107.25 | 6,267,366.67 |
| Standard Deviation | 85,567,747.81 | 73,194,660.88 |
| Minimum | 8,743,362.50 | 1,326,814.29 |
| Maximum | 224,179,313.33 | 160,444,185.33 |
| Count | 7 | 7 |

The graphical analysis in Figure 1 shows the trend of experiment stocks and the control stocks before and after cross-listing. The results show that the annual abnormal returns of cross-listed stocks were lower than the non-cross-listed stocks for the entire period of study. The control group has outperformed the experiment group after cross-listing for the entire period. After cross-listing, the cross-listed stocks move the same with the non-cross listed stocks but lower in terms of abnormal returns until the third year when they catch up with the non-cross listed stocks.

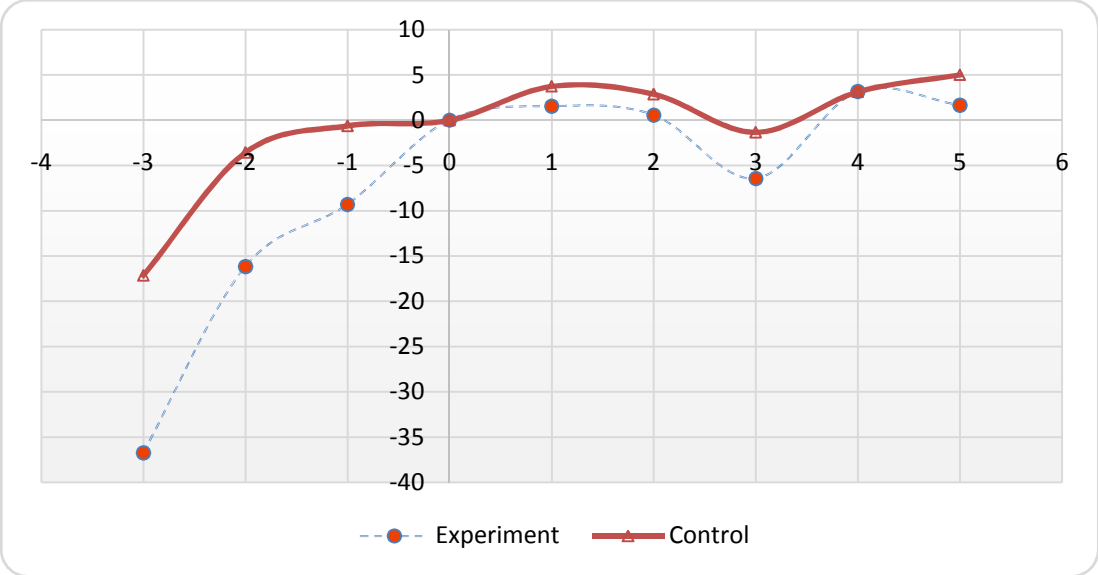


**Figure 1: Trend of annual abnormal returns of experiment and control stocks**

### 4.3 Multivariate Analysis

Table 10 shows the descriptive results for the t-tests for the annual abnormal returns of the experiment group before and after cross-listings. The experiment group has a negative average abnormal returns before cross-listing (mean = - 20.75) and a positive one after cross-listing (mean = 0.09).

**Table 10: Abnormal returns before and after cross-listing for experiment group**

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Abnormal returns before cross-listing | 7 | -145.288 | -20.7554 | 2059.65 |
| Abnormal returns after cross-listing | 7 | 0.656912 | 0.093845 | 438.7585 |

Table 11 shows the t-test results for the differences in the returns of the experiment group before and after cross-listing. The results show that the differences between the two groups were insignificant, $F = 1.22$, $p = 0.29$. Thus, at 5% level of significance, the cross-listed firms did not perform significantly better after cross-listing than before cross-listing.

**Table 11: ANOVA for experiment group: before and after cross-listing**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 1521.418 | 1 | 1521.418 | 1.21791 | 0.29141 | 4.747225 |
| Within Groups | 14990.45 | 12 | 1249.204 | | | |
| **Total** | **16511.87** | **13** | | | | |

Table 12 shows the descriptive results for the t-tests for the annual abnormal returns of the control group before and after cross-listings. The control group has a negative average abnormal returns before the cross-listing of their peers (mean = -7.09) and a positive one after cross-listing (mean = 2.69).

**Table 12: Abnormal returns before and after cross-listing for control group**

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Abnormal returns before cross-listing | 7 | -49.6958 | -7.09941 | 594.6903 |
| Abnormal returns after cross-listing | 7 | 18.85502 | 2.693574 | 81.36219 |

Table 13 shows the t-test results for the differences in the returns of the experiment group before and after cross-listing of their peers. The results show that the differences between the two groups were insignificant, $F = 0.99$, $p = 0.34$. Thus, at

5% level of significance, the non-cross-listed firms did not perform significantly better before or after cross-listing of their peers.

**Table 13: ANOVA for control group: before and after cross-listing**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 335.6586 | 1 | 335.6586 | 0.992996 | 0.338681 | 4.747225 |
| Within Groups | 4056.315 | 12 | 338.0263 | | | |
| **Total** | **4391.974** | **13** | | | | |

Table 14 shows the descriptive results for the t-tests for the annual abnormal returns of both the experiment and the control groups. The results show that both have negative average returns for the period under analysis. However, the control group has higher returns (mean = -0.87) than the experiment group (mean = -6.87) which suggests that on average, non-cross-listed stocks performed better than the cross-listed stocks over the same period.

**Table 14: Abnormal returns for experiment and control groups**

| **Groups** | **Count** | **Sum** | **Average** | **Variance** |
|---|---|---|---|---|
| Experiment group | 9 | -61.797 | -6.86633 | 166.7138 |
| Control group | 9 | -7.83035 | -0.87004 | 44.84702 |

Table 15 shows the t-test results for the differences in the returns of the experiment group versus the control group. The results show that the differences between the two groups were insignificant, $F = 1.53$, $p = 0.23$. Thus, at 5% level of significance, none of the stocks performed significantly better than the other stocks for the period under analysis.

**Table 15: ANOVA for experiment and control stocks**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 161.7997 | 1 | 161.7997 | 1.529581 | 0.234022 | 4.493998 |
| Within Groups | 1692.486 | 16 | 105.7804 | | | |
| **Total** | **1854.286** | **17** | | | | |

## 4.4 Discussion of Findings

This study examined the effect of cross-listing on share returns. The descriptive results showed that the abnormal returns of cross-listing firms moved the same way with the cross-listing firms but were lower than those of the non-cross-listed firms. The abnormal returns of cross-listed stocks however generally rose after cross-listing than the period before cross listing. This is consistent with Smirnova (2004) who showed that volatility of stock returns increase after cross-listing.

The ANOVA results showed that cross-listed stocks did not outperform non-cross-listed stocks over the period. In fact, the non-cross-listed stocks had higher abnormal returns than the cross-listed stocks. The results are inconsistent with Foucault and Fresard (2012) who found that cross-listed firms in US have higher investment-to-price sensitivity than firms that never cross-list. This shows that there is no premium for Kenyan firms that decide to cross-list in other stock markets. This can be attributed to the fact that the markets in which Kenyan firms cross-list are not as reputable as the local stock market and, therefore, do not attract any premium value on the shares.

# CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presents the summary of research findings, the conclusions of the study, the limitations of the study, the recommendations for policy and practice and the suggestions for further research.

## 5.2 Summary of Findings

The descriptive results show that the control group had a higher mean than the experiment group. The graphical analysis showed that the annual returns of cross-listed stocks were lower than those of the non-cross-listed stocks during the period before the cross listing event. After the cross-listing event, the annual returns of the cross-listed stocks moved in the same direction as the non-cross listed stocks but were lower in terms of abnormal returns until the third year when they catch up with the non-cross listed stocks.

The t-tests for the annual abnormal returns of the experiment group before and after cross-listings shows that the experiment group has a negative average abnormal returns before cross-listing (mean = - 20.75) and a positive one after cross-listing (mean = 0.09). These differences were not statistically significant, $F = 1.22$, $p = 0.29$. Thus, at 5% level of significance, the cross-listed firms did not perform significantly better after cross-listing than before cross-listing.

The t-tests for the annual abnormal returns of the control group before and after cross-listings shows that the control group has a negative average abnormal returns before the cross-listing of their peers (mean = -7.09) and a positive one after cross-listing (mean = 2.69). These differences are statistically insignificant, $F = 0.99$, $p = 0.34$.

Thus, at 5% level of significance, the non-cross-listed firms did not perform significantly better before or after cross-listing of their peers.

The t-tests for the annual abnormal returns of both the experiment and the control groups showed that while both groups had negative average returns for the period under analysis, the control group had higher returns (mean = -0.87) than the experiment group (mean = -6.87) which suggests that on average, non-cross-listed stocks performed better than the cross-listed stocks over the same period. These differences were also statistically insignificant, $F = 1.53$, $p = 0.23$. Thus, at 5% level of significance, none of the stocks performed significantly better than the other stocks for the period under analysis.

## 5.3 Conclusions

The study found that there were no statistically significant differences for the period before or after cross listing for both cross-listed and non-cross-listed stocks. This shows that cross-listing does not improve the stock performance in Kenya. The study concludes that cross-listing does not have a significant benefit on the firms in Kenya in terms of share returns.

The study also found that while non-cross-listed firms had higher abnormal returns than the cross-listed firms for the period under analysis, these differences were statistically insignificant. This suggests that the performance of cross-listed firms and non-cross-listed firms does not differ. Therefore, the study concludes that cross-listing does not improve the performance of firms nor does it hurt the performance of rival stocks.

## 5.4 Limitations of the Study

This study focused on the Kenyan cross-listed firms across the East African exchanges together with their non-cross-listed rivals on the Nairobi Securities Exchange. This limits the applicability of the results to other non-cross-listed firms in Kenya or those cross-listed outside the East African exchanges.

This study also used annual stock prices and not daily returns. This might mask the veracity of the volatility of stock returns. Thus, the results of this study should be discussed with this annual perspective in mind so as to be clear on what effect the cross-listing has on the annual returns of companies.

## 5.5 Recommendations

The study recommends that firms in Kenya should carefully examine their motives for cross-listing as improvement in performance in terms of returns cannot be guaranteed. Thus, it may be important for them to check the reputation of the stock markets they wish to list on and only cross-list on those that can improve their value.

The study also recommends that when companies see their rival firm's cross-list on other stock exchanges, they should not be worried much especially when those other markets are not as reputable as the local stock market. However, for purposes of improving their liquidity, cross-listing within a few years after the rivals could pay off.

Finally, the study recommends that regulators should work together with the listed firms to encourage them to cross-list on other reputable stock markets to improve their visibility and reputation. This may not only improve the performance of the cross-listed firms but also the performance of the local stock market.

## 5.6 Suggestions for Further Research

The study suggests that more studies should be carried out using daily or monthly returns to show how, within the three year period, the returns of cross-listed firms behave vis-à-vis the returns of their non-cross-listed peers.

The study further suggests that studies should examine whether cross-listing in specific markets is more beneficial for Kenyan firms than on other markets. For instance, is there is need to study whether the cross-listing on the Uganda Securities Exchange is better than doing so on the Johannesburg Stock Exchange. Whether certain markets in Africa provide premiums to companies listing on them than others has also not been studied and remains an area that should be studied in future.

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# APPENDICES

## Appendix I: Companies Listed at the NSE

### Sector 1: Agricultural

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

### Sector 2: Commercial and Services

8. Express Ltd
9. Kenya Airways Ltd
10. Nation Media Group
11. Standard Group Ltd
12. TPS Eastern Africa (Serena) Ltd
13. Scangroup Ltd
14. Uchumi Supermarket Ltd
15. Hutchings Biemer Ltd
16. Longhorn Kenya Ltd
17. Atlas Development and Support Services

### Sector 3: Telecommunication and Technology

18. Safaricom

### Sector 4: Automobiles and Accessories

19. Car and General (K) Ltd
20. Sameer Africa Ltd
21. Marshalls (E.A.) Ltd

### Sector 5: Banking

22. Barclays Bank Ltd
23. CFC Stanbic Holdings Ltd
24. I&M Holdings Ltd

25. Diamond Trust Bank Kenya Ltd
26. Housing Finance Co Ltd
27. Kenya Commercial Bank Ltd
28. National Bank of Kenya Ltd
29. NIC Bank Ltd
30. Standard Chartered Bank Ltd
31. Equity Bank Ltd
32. The Co-operative Bank of Kenya Ltd

**Sector 6: Insurance**

33. Jubilee Holdings Ltd
34. Pan Africa Insurance Holdings Ltd
35. Kenya Re-Insurance Corporation Ltd
36. Liberty Kenya Holdings Ltd
37. British-American Investments Company ( Kenya) Ltd
38. CIC Insurance Group Ltd

**Sector 7: Investment**

39. Olympia Capital Holdings Ltd
40. Centum Investment Co Ltd
41. Trans-Century Ltd
42. Home Afrika Ltd
43. Kurwitu Ventures
44. Nairobi Securities Exchange

**Sector 8: Manufacturing and Allied**

45. B.O.C Kenya Ltd
46. British American Tobacco Kenya Ltd
47. Carbacid Investments Ltd
48. East African Breweries Ltd
49. Mumias Sugar Co. Ltd
50. Unga Group Ltd
51. Eveready East Africa Ltd
52. Kenya Orchards Ltd
53. A.Baumann CO Ltd

54. Flame Tree Group Holdings Ltd

**Sector 9: Construction and Allied**

55. Athi River Mining
56. Bamburi Cement Ltd
57. Crown Berger Ltd
58. E.A.Cables Ltd
59. E.A.Portland Cement Ltd

**Sector 10: Energy and Petroleum**

60. KenolKobil Ltd
61. Total Kenya Ltd
62. KenGen Ltd
63. Kenya Power & Lighting Co Ltd
64. Umeme Ltd

**Source: Nairobi Securities Exchange (2014)**

**Appendix II: Cross-Listed Stocks in Kenya**

| # | Company | Cross-listed Market | Date cross-listed |
|---|---|---|---|
| 1 | Kenya Commercial Bank | Uganda | 11th September 2008 |
| | | Tanzania | 17th December 2008 |
| | | Rwanda | |
| 2 | Equity Bank | Uganda | 18th June 2009 |
| | | Rwanda | |
| 3 | Nation Media Group | Uganda | 19th October 2010 |
| | | Rwanda | |
| | | Tanzania | 21st February 2011 |
| 4 | Centum Investments | Uganda | 11th February 2010 |
| 5 | Jubilee Holdings | Uganda | 14th February 2006 |
| | | Tanzania | 20th December 2006 |
| 6 | Uchumi Supermarket | Uganda | 13th November 2013 |
| | | Tanzania | 15th August 2014 |
| 7 | Umeme | Kenya | 14th December 2012 |
| 8 | Kenya Airways | Uganda | 28th March 2002 |
| | | Tanzania | 1st October 2004 |
| 9 | East African Breweries | Uganda | 27th March 2000 |
| | | Tanzania | 29th June 2005 |

**Source: Nairobi Securities Exchange (2014)**

**Appendix III: Average Total Assets**

| Experiment | Average Assets |
|---|---|
| KCB - 2008 | 2,017,613,820 |
| Equity - 2009 | 1,457,627,766 |
| NMG - 2010 | 69,946,900 |
| Centum - 2010 | 103,648,824 |
| Jubilee - 2006 | 174,976,626 |
| KQ - 2004 | 418,682,000 |
| EABL - 2005 | 214,304,858 |
| **Control** | **Average Assets** |
| Barclays - 2008 | 1,443,997,668 |
| Stanchart - 2009 | 1,339,934,518 |
| SGL - 2010 | 26,452,545 |
| Olympia - 2010 | 9,287,700 |
| Pan Africa - 2006 | 56,406,300 |
| TPS - 2004 | 35,501,446 |
| BAT - 2005 | 67,586,624 |

**Appendix IV: Returns**

| **Experiment** | **T-3** | **T-2** | **T-1** | **T+1** | **T+2** | **T+3** | **T+4** | **T+5** |
|---|---|---|---|---|---|---|---|---|
| KCB - 2008 | - 0.52 | 0.03 | 0.21 | - 0.13 | - 0.07 | - 0.28 | - 0.45 | 1.01 |
| Equity - 2009 | - 0.03 | 0.05 | 0.23 | 0.86 | - 0.89 | - 0.83 | - 0.79 | - 0.65 |
| NMG - 2010 | 0.95 | - 0.14 | - 0.29 | - 0.16 | 0.28 | 0.87 | 0.88 | - 1.00 |
| Centum - 2010 | 0.71 | 0.60 | - 0.34 | - 0.13 | - 0.21 | 1.12 | 2.91 | - 1.00 |
| Jubilee - 2006 | - 0.85 | - 0.82 | - 0.74 | - 0.34 | - 0.62 | - 0.64 | - 0.43 | - 0.52 |
| KQ - 2004 | - 0.24 | - 0.29 | - 0.40 | 1.50 | 9.94 | 8.90 | 1.97 | 2.91 |
| EABL - 2005 | - 1.00 | 0.52 | 1.99 | - 0.07 | 0.03 | 0.34 | - 0.03 | 0.21 |
| **Control** | **T-3** | **T-2** | **T-1** | **T+1** | **T+2** | **T+3** | **T+4** | **T+5** |
| Barclays - 2008 | 4.21 | 0.52 | 0.56 | - 0.11 | 0.24 | - 0.74 | - 0.69 | - 0.65 |
| Stanchart - 2009 | 0.27 | 0.28 | - 0.01 | 0.60 | - 0.01 | 0.46 | 0.89 | 1.08 |
| SGL - 2010 | 0.25 | 0.10 | - 0.16 | - 0.45 | - 0.52 | - 0.43 | - 0.26 | - 1.00 |
| Olympia - 2010 | - 1.00 | 0.68 | 0.09 | - 0.15 | - 0.34 | - 0.39 | - 0.13 | - 1.00 |
| Pan Africa - 2006 | - 0.74 | - 0.77 | - 0.56 | 0.09 | - 0.32 | - 0.51 | - 0.28 | - 0.77 |
| TPS - 2004 | - 0.64 | - 0.60 | - 0.42 | 0.71 | 0.83 | 0.21 | 0.11 | - 0.05 |
| BAT - 2005 | - 1.00 | 0.35 | - 0.02 | - 0.03 | - 0.32 | - 0.36 | - 0.13 | 0.32 |