THE RELATIONSHIP BETWEEN CROSS LISTING AND LIQUIDITY: A STUDY OF SHARES CROSS LISTED IN THE EAST AFRICAN SECURITIES EXCHANGES

BY

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DECLARATION

This Research Paper is my original work and has not been submitted for award of a degree at the University of Nairobi or any other university.

…… ……

CALVIN KAMOTHO WANJIRU **DATE**

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BY SUPERVISOR

This project has been submitted for examination with my approval as the candidate's Supervisor;

…… ……

MR. MIRIE MWANGI **DATE**

SUPERVISOR

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DEDICATION

This research project has been dedicated to my late Mother Rosebell, Brother Kamau and Sister Wambui. You are truly pillars in my life.

ABSTRACT

Cross listing has become a common feature in developing countries financial structures. The same trend has been replicated in the emerging economies as well. Many reasons have been advanced as the driving forces behind companies listing their securities in other financial markets in addition to listing in their primary markets. This study sought to evaluate the relationship between cross listing and the liquidity of the cross listed

shares. This is because cross listing has been associated with improved liquidity of shares in the developed markets. This study sought to establish whether there is indeed a relationship between cross listing and liquidity of the cross listed shares in the East African Securities Exchanges. It is noted in papers that encompass liquidity that liquidity represents the possibility of any form of asset to be transformed into another form of asset in a short period without losing its value considerably. The population of the study was the entire firms cross listed in the East African Securities Exchanges namely: East African Breweries Limited, Equity Bank Limited, Jubilee Holdings Limited, Umeme Limited, Centum Investments Limited, Kenya Airways Limited, Kenya Commercial Bank Limited and Nation Media Group Limited. The study was carried out by use of an event study research design.

By use of an analytical regression model and the application of an event study design, the study employed daily traded volumes of shares 6 months before cross listing and 6 months after cross listing. Market capitalization of the firms involved and the market were also employed in the study not to mention the use of the proportion of trading for the companies in the international market as compared to the home market.

The results showed an increase in the volumes of shares traded and an increase in market capitalization of the cross listed firms as well as an improvement in the market capitalization of the bourses where the firms had cross listed. However, the results did not show a significant increase in the liquidity of the cross listed securities. Thus in conclusion cross listing in the East African Securities exchanges does not improve significantly the liquidity of the cross listed securities. The study recommends studies on the future of cross listing in the region as well as the effect of the imminent regional integration on cross listing in the East African Securities Exchanges. These studies are recommended since cross listing and regional integration not to mention liberalization of financial systems and global economies have become common phenomenon in the financial world and as such of great importance.

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ABBREVIATIONS

ADR	-	American Depository Receipts
CDS	-	Central Depository System
DSE	-	Dar es Salaam Stock Exchange
EAC	-	East African Community
EADB	-	East African Development Bank

EASEA	-	East African Securities Exchange Association
GAAP	-	Generally Accepted Accounting Principles
IRH	-	Investor Recognition Hypothesis
ISIN	-	International Securities Identification Number
NSE	-	Nairobi Securities Exchange
NYSE	-	New York Stock Exchange
OTC	-	Over The Counter Market
SIP	-	Share Issue Privatisation
SOX	-	Sarbanes-Oxley Act
SPSS	-	Statistical Product and Service Solution
US	-	United States of America
USE	-	Uganda Securities Exchange

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

International cross listing is one, among several corporate policies, that may impact the liquidity of shares (Alexander, Eun and Janakiramanan, 1988). This analysis is motivated by the work of Amihud and Mendelson (1986) that show that liquidity is a priced risk factor in the return generating process. The main contribution of this research proposal is to evaluate the relationship between regional cross listing and liquidity of the cross listed shares in the East African Securities Exchanges. This analysis will be carried out by looking at the impact of cross listing on the volume of shares bought and sold both in the home and foreign market. To test the effects on trading volume, this study will compare total trades before and after the international cross listing since according to Mittoo (1992) managers suggest that the success of the decision to cross list should be measured by its global trading volume impact.

1.1.1 Cross Listing of Securities

Cross-listing is a situation when shares of a company are listed on one or more foreign stock exchange(s) in addition to its domestic stock exchange at the same time, Nývltová (2007). The process itself may be defined as one where a firm seeks to place its securities for sale on a stock exchange that resides outside of their home jurisdiction. Other names for cross-listing are cross-border listing or dual-listing. This is done by a firm which has

issued its shares on the domestic market and wants to issue the same shares on another foreign market at the same time or subsequently.

Cross listing can be achieved through two generic ways: direct listing of shares as ordinary securities on the host exchange or through a depositary receipt program where the home market equity shares serve as the underlying to a certificate or receipt issued on the host exchange by a third party (the depositary bank). Firms' tend cross-list abroad for four common reasons (Roosenboom and Dijk, 2009). Market segmentation allows investors to escape cross-border barriers to investment. Liquidity effects reduce costs in the sense that the greater liquidity the lower the spreads. The information or signaling hypothesis is based on the premise that cross-listing signals market participants about the financial health of the firm. Finally, the corporate governance hypothesis or "bonding" assumes that firms, whom domestically have poor governance standards, often list their securities on countries with more rigorous governance procedures.

Cross listed securities have always had a significant role in stock market development. Hargis (2000) succinctly alludes to its role in development by stating that international cross listing has been shown to transform a segmented local equity market from equilibrium of low liquidity and market capitalisation to an integrated market with high liquidity and market capitalisation. Foucault and Gehrig (2006) also postulated that a cross listing enables firms to better evaluate investment decisions due to the enhancement of stock price informativeness, while Adelegan (2008) noted that the process can bring significant benefits. Some of these included the financing of corporate and development needs of stock markets, the provision of wealth diversification, greater efficiency, the

lowering of the cost of capital, increased market access for small stock markets, and the potential to mitigate the effects of foreign investment outflows in shallow markets as well as increasing the liquidity of the shares and the market in general. This latter benefit forms the core of this study.

Research shows that over the last three decades an increasing number of companies from both developed and emerging markets have been cross-listing abroad (Karolyi, 2004). However, cross-listing is controversial and raises a number of academic and practitioner questions, particularly: Why and how does a firm cross-list, and does cross-listing create additional value for the existing stockholders? Cross listing may also contribute to the stock value by increasing the liquidity of the shares. Chouinard and D'Souza (2004) explain that expected returns positively correlate with liquidity, measured in terms of the bid-ask spread. Thus, narrower spreads following cross listing generate improved liquidity, which in turn increases the share value of a company. Hence, according to Chouinard and D'Szouza (2004), enhanced inter-market competition might lower the spread and therefore improve liquidity.

Chouinard and D'Souza (2004) also argue that an increase in total trading volume and in market depth will emerge. According to Karolyi and Foerster (2004), the extent to which liquidity is enhanced is related to the proportion of total trading volume that the new market captures and to the trading restrictions imposed on foreigners prior to listing. Chouinard and D'Souza (2004) claim that liquidity improves the most when the domestic market retains a significant portion of its trading volume and when restrictions on pre-listing cross-border trading are stringent. Cross-listing generates other costs and disadvantages which a firm must handle. Karolyi (1998) names barriers that are

connected with investments. He groups these investments barriers into direct and indirect costs. Direct costs are represented by regulatory frictions from foreign exchange controls, taxes connected with withholding, treaties about international taxation, foreign ownership limitations and restrictions connected with capital or dividend payment, and last but not least higher brokerage and trading costs. Indirect costs comprise mostly monitoring costs that appear when there is a lack of information about foreign companies caused by non-synchronous business and trading hours.

The costs commonly associated with cross listing include costs to meet disclosure requirements for example, The Sarbanes-Oxley (SOX) Act, the presence of bureaucracy in the implementation of regional policy on the national level, the costs associated with exchange listings and the possible trepidation of regional companies to engage in the cross listing process due to the aforementioned costs, bureaucracy and its perceived viability Karolyi (1998). He mentions also that investors must face disadvantages connected with cross-border listings. He points out the alternative taxation rules, limited ownership of foreign equity and also greater costs related to cross-border trading. The requirements for entering capital markets differ on the global scale. Every stock exchange has its own requirements. In general, the bigger the market is, the more requirements the issuer must follow and keep. There has been a decline in the number of cross listings in the world and this has been attributed to the costs and also the ambiguity of cross listing's benefits as many theories have been adduced to explain cross listing.

1.1.2 Liquidity of Shares

There are many definitions of liquidity whether relating to asset liquidity or market liquidity. An asset is liquid if it can be converted into cash quickly and at a low cost. This definition applies both to real assets and to financial assets. It is very hard to measure and capture liquidity since there is no unique and widely accepted definition of liquidity. It is noted in papers that encompass liquidity that liquidity represents the possibility of any form of asset to be transformed into another form of asset in a short period without losing its value considerably. Schmukler, Yeyati and Horen (2007) define a liquid market as one where market participants can promptly execute large volume transactions without significant price impact. Liquidity is the ease at which securities can be bought and sold in the market without significantly affecting the stock price. Liquidity is an essential characteristic to the success of any exchange. As the liquidity of a stock (or the market) increases, the greater the access available to investors; this increased visibility can be exhibited through a tightening/reduction in the bid-ask spread or an increase in turnover (or a combination of both).

Liquidity is a fundamental aspect of stock market development. A deeper secondary market allows companies to raise capital at a lower price (Ellul and Pagano, 2004). Furthermore, market liquidity rather than market size provides incentives for information acquisition to financial analysts, whose private signals are aggregated and partially mirrored in stock prices. This in turn stimulates the use of stock-based managerial incentive schemes, which may enhance corporate performance, economic efficiency and growth Hölmstrom and Tirole, (1993). Moreover, liquidity appears to be a priced risk factor Pastor *et al*. (2003). A basic feature of an efficient capital market is constant liquidity, an easy mechanism for entry and exit by investors. This requires sufficient

volume and size of transactions in the market Tuladhar (1996). The stock market forms a significant component of the financial sector of any economy.

Market liquidity is difficult to measure and compare across countries. The conventional notion of market liquidity in the literature is the price impact, which coincides with the price response associated with a unit trade in auction markets (Grossman and Stiglitz, 1980; Kyle, 1985) and with the effective bid-ask spread in dealer markets (Glosten and Milgrom, 1985; Biais, 1993; Dennert, 1993). A market is illiquid when "sell" orders are filled at a lower price than "buy" orders. Such price premium can be interpreted as the compensation required by traders and intermediaries who satisfy other investors' liquidity needs. The stock market is one of the most important sources for companies to raise funds. This allows businesses to be publicly traded, or raise additional capital for expansion by selling shares of ownership of the company in a public market. The liquidity that an exchange provides affords investors the ability to quickly and easily sell securities. This is an attractive feature of investing in stocks, compared to other less liquid investments such as real estate.

There are various ways of measuring market as well as the liquidity of shares. Pastor and Stambaugh (2003) for example, measure U.S. stock market liquidity by following the impact of volume traded and price change. Another simple measure of market liquidity is to measure it through the frequency of trading. More frequent trading would certainly mean improved liquidity but with such an indicator it is not possible to measure extent of liquidity among frequently traded shares. Volume of trading, that is, the number of shares traded could also be considered as a measure of liquidity. Gupta (1992) has used this

measure to detect "excessive" or speculative trading. However, it would be difficult to assess liquidity only with reference to absolute volume of shares traded. A relative measure could be the ratio of traded volume to total number of shares issued which enables comparison across different scripts. However, the number of shares actually available for trading is different from number of shares issued because of promoter/strategic or government holding, etc. which normally are not traded. As a result, floating stock will be lower than the total issued shares.

Adjustment would therefore be necessary to account for this factor while accurately measuring liquidity of different shares. However, such adjustments would be company specific and it would be difficult to do such adjustments (for arriving at floating stock) at the aggregate level. Moreover, stock prices, anticipated or actual, are linked to demand for stocks and the extent of trading volumes. Hence an ideal measure of liquidity should combine price and volume. One way to combine this is to consider turnover as a measure of liquidity. In fact, liquidity has often been analysed in terms of turnover data. At the aggregate level, trends in annual turnover (i.e. number of shares traded multiplied by the price) becomes a measure of market liquidity.

1.1.3 Relationship between Cross Listing and Liquidity of Shares

Cross-listings on deeper and more liquid equity markets could lead to an increase in the liquidity of the stock and a decrease in the cost of capital. Foerster and Karolyi (1998)

state that cross listings of Canadian firms in the US are associated with an increase in trading volume and a decrease in effective spreads. Smith and Sofianos (1996) document a substantial increase in the combined value of trading for a sample of foreign listings on New York Securities Exchange (NYSE). Silva and Chávez (2008) find that Latin American firms with an American Depository Receipts (ADR) do not always exhibit a liquidity advantage in the local market. Halling et al. (2008) document that for cross-listings on US exchanges, the fraction of trading that occurs on the destination market is greater for firms from countries that are geographically close to the US and for firms from less developed countries.

Mittoo (1992) and Bancel and Mittoo (2001) report, on the basis a survey done with Canadian and European firms, that managers perceive that international cross listings increase the total trading volume of the share of a firm. In fact several studies have looked upon the effects of cross listing on trading volume. Karolyi (1998) and the references therein conclude that there is overwhelming evidence that the total volume of trading increases following an international cross listing. In many cases the evidence shows that trading volume in the home market also increases. While Levine and Schmukler (2003) find a reduction in the trading volume of cross listed shares in the home market, Halling,*et al.* (2004) report that the increase in trading volume that occurs in the international market immediately after the international cross listing is followed by a decline later on.

arolyi (2004) reports a significant positive relationship between the number of cross listings and a subsequent increase in the aggregate liquidity of the originating home market. This result seems to be driven by an increase in the liquidity of cross listed shares

with no spillover effects for the other (non-cross listed) stocks. Thus the ratio of the turnover of non cross listed and total home turnover necessarily decreases. Fernandes (2005) analyses the impact of the first ADR on the liquidity of non cross- listed home stocks and finds a positive effect.

1.1.4 Securities Exchanges in the East African Region

The East African Securities Exchanges Association (EASEA) came into being in 2004, following the signing of a Memorandum of Understanding between the Dar-es-Salaam Stock Exchange (DSE), the Uganda Securities Exchange (USE) and the Nairobi Securities Exchange (NSE). Cross border listing has gained significance over the past few years since the signing of the East Africa Community treaty in 1999. The development of cross listing across national stock markets in Tanzania, Kenya, Uganda and Rwanda is a milestone in the EAC's drive for regional integration. The East African Community (EAC) is the regional intergovernmental organisation of the Republics of Burundi, Kenya, Rwanda, the United Republic of Tanzania, and the Republic of Uganda, with its headquarters in Arusha, Tanzania. The Treaty for Establishment of the East African Community was signed on 30th November 1999 and entered into force on 7th July 2000 following its ratification by the original three Partner States – Kenya, Tanzania and Uganda. Rwanda and Burundi acceded to the EAC Treaty on 18th June 2007 and became full Members of the Community with effect from 1st July 2007.

Of the five East African countries, only Burundi does not have a securities exchange to date. In 1954 the Nairobi Stock Exchange was then constituted as a voluntary association

of stockbrokers registered under the Societies Act. It is the most developed exchange in the region with sixty two listed companies from different sectors of the economy. The Uganda Securities Exchange (USE) was licensed to operate as an approved Stock Exchange in June 1997 by the Capital Markets Authority of Uganda. The USE began formal trading operations in January 1998 following the listing of its maiden instrument, the East African Development Bank (EADB) Bond. Currently the products listed on the Exchange include bonds and 9 equities (3 of the equities are cross listings).The Dar Es Salaam Stock Exchange (DSE) was incorporated in 1996 and commenced its operations in 1998 with a listing and trading of its first equity. In 1999, it deployed the Central Depository System (CDS) which also saw its first listing of a corporate bond. The Rwanda Stock Exchange Limited was incorporated on 7th October 2005 with the objective of carrying out stock market operations. The Stock Exchange was demutualised from the start as it was registered as a company limited by shares. The RSE is 60% owned by brokers, 20% by the Government of Rwanda and 20% by other shareholders. It has six listings including two cross listed companies from Kenya. East Africa has plans to merge the exchanges in line with a program of economic integration meant to open borders and ease commerce between the five member states of the EAC: Kenya, Rwanda, Uganda, Tanzania and Burundi. The region kicked off its common market which entailed dismantling trade barriers across borders in 2010, with the goal of establishing a fully free regional market by 2015.

1.2 Research Problem

Cross listing has become a common practice in the world which has led to the interest to study the motivation for cross listing from many scholars who have attributed the phenomena to a number of reasons, and various studies provide different levels of empirical evidence in support of these reasons. One of the reasons advanced for cross listing is the relationship between cross listing and liquidity.

International cross listing is one, among several corporate policies, that may impact the liquidity of shares Alexander, Eun and Janakiramanan, (1988). Also Amihud and Mendelson (1986) state that liquidity is a priced risk factor in the return generating process. Mittoo (1992) and Bancel and Mittoo (2001) report, on the basis a survey done with Canadian and European firms, that managers perceive that international cross listings increase the total trading volume of the share of a firm. Yet other studies report a negative impact for the home market liquidity (Claessens, Kingebiel and Schmukler (2002); Moel (2001); Jaykumar (2002)).

Kuria (2008) determined the short-term and long-term effects of cross-border listing announcements on companies listed at the NSE and their post listing performance, and reported that cross-listing announcements have statistically significant negative effects on stock returns. In fact, the non cross-listed firms had higher daily turnover ratios than cross-listed firms, an indicator of increased activity hence liquidity. Moreover, Mugo (2010) and Mugo *et al*., (2011) have reported that cross listing affects firm liquidity and P/E ratios. However, a closer look at these findings reveals fatal interpretational errors as the changes were never tested for significance. Unlike the developed market, studies on cross-listing on emerging markets are thin.

However, there is no study of effect and relationship of regional cross listing on liquidity in the EAC specifically looking at the volume of shares traded and turnover of the shares as a proxy for liquidity. This study will seek to fill this gap by answering the question: Does cross listing in the East African Securities Exchanges enhance the liquidity of the shares?

1.3 Research Objectives

To evaluate the relationship between cross listing and liquidity of the shares cross listed in the East African securities exchanges.

1.4 Value of the Study

The study is of value to the study of Finance as it will contribute to the understanding of the factors that drive cross listing specifically the liquidity of shares and the extent of the importance of liquidity in cross listing. It will also depict the relationship between cross listing and liquidity of the cross listed shares and the securities markets at large.

It will also be of value to the practice of Finance as it will empirically be of use to managers of corporations and exchanges in the East African Region as they seek to source for funds in the regional securities exchanges by widening their capital base.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section will seek to evaluate written and published literature revolving around cross listing and its relationship to the liquidity of shares and the market as well. The literature will cover cross listings all over the world with an emphasis on cross listings in Africa and East Africa.

2.2 Theoretical Literature Review

The market for a stock is said to be liquid if the shares can be rapidly sold and the act of selling has little impact on the stock's price. Generally, this depends on where the shares are traded and the level of interest that investors have in the company. Company stock traded on the major exchanges can usually be considered liquid. Often, approximately one percent of the float trades hands daily, indicating a high degree of interest in the stock. On the other hand, company stock traded on the over the counter (OTC) are often non-liquid, with very few, even zero, shares traded daily. Firms tend cross-list abroad for four common reasons. Market segmentation allows investors to escape cross-border barriers to investment. Liquidity effects reduce costs in the sense that the greater liquidity the lower the spreads. The information or signaling hypothesis is based on the premise that cross-listing signals market participants about the financial health of the firm. Finally, the corporate governance hypothesis or "bonding" assumes that firms, whom domestically have poor governance standards, often list their securities on countries with more rigorous governance procedures.

The academic literature has identified a number of different arguments to cross-list abroad in addition to a listing on the domestic exchange. Roosenboom and Dijk (2009) distinguish between the following motivations: Market segmentation: The traditional argument for why firms seek a cross-listing is that they expect to benefit from a lower cost of capital that arises because their shares become more accessible to global investors whose access would otherwise be restricted because of international investment barriers. Market liquidity: Cross listings on deeper and more liquid equity markets could

lead to an increase in the liquidity of the stock and a decrease in the cost of capital. Information disclosure: Cross listing on a foreign market can reduce the cost of capital through an improvement of the firm's information environment. Also, cross listings tend to be associated with increased media attention, greater analyst coverage, better analysts' forecast accuracy, and higher quality of accounting information. Firms can use a cross listing on markets with stringent disclosure requirements to signal their quality to outside investors and to provide improved information to potential customers and suppliers for example, by adopting the Generally Accepted Accounting Principles (GAAPs).

According to the Investor protection ("bonding") view, cross listing in the US acts as a bonding mechanism used by firms that are incorporated in a jurisdiction with poor investor protection and enforcement systems to commit themselves voluntarily to higher standards of corporate governance. In this way, firms attract investors who would otherwise be reluctant to invest. Other motivations: Cross listing may also be driven by product and labor market considerations for example, to increase visibility with customers by broadening product identification, to facilitate foreign acquisitions, and to improve labor relations in foreign countries by introducing share and option plans for foreign employees. Foerster and Karolyi (1999) and Baker, Nofsinger and Weaver (2002) attribute part of the increase in a cross-listed firm's valuation to the broadening of its U.S. investor base and the greater visibility of the firm, as predicted by Merton's (1987) investor recognition hypothesis.

2.2.1 Merton's (1987) Investor Recognition Hypothesis

Merton (1987) argues that the cost of information acquisition prevents investors from holding all available securities in their portfolios. There are stocks that are essentially neglected by the majority of investors. These neglected stocks should have higher expected returns (lower prices) than well-recognized stocks because of a smaller investor base and lower risk sharing. The key behavioral assumption invoked by Merton's (1987) model is that investors only use securities that they know about in constructing their optimal portfolios. If relatively few investors know about a particular security, then the only way for markets to clear is for these investors take large undiversified positions in the security. These investors then require higher expected returns to compensate them for the increased idiosyncratic risk associated with their positions. Merton refers to the number of investors who know about a security as the degree of 'investor recognition' for that security and models the resulting capital market equilibrium.

The key predictions of his model are that the security value is increasing in investor recognition, expected return is decreasing in investor recognition, the above two relations are increasing in the security's idiosyncratic risk, and financing and investing activities in the underlying firm are increasing in investor recognition. Merton (1987) also provides an extension of his basic model that examines the impact of endogenizing the choice of investor recognition on a firm's investment and financing decisions. This extension indicates that changes in investor recognition will be positively correlated with corporate financing and investing activities. If exogenous events cause investor recognition of a firm's securities to increase, then the firm's cost of capital will fall and so its optimal level of financing and investing activities will increase. If exogenous events cause an increase in financing and investing activities, then the benefits from having a lower cost

of capital will increase, so efforts to generate investor recognition of the firm's securities will increase.

2.2.2 Liquidity Preference Theory

Economist John Maynard Keynes describes liquidity preference theory as the idea that investors demand a premium for securities with longer maturities, which entail greater risk, because they would prefer to hold cash, which entails less risk, Dillard and Dudley (1948). The more liquid an investment is, the easier it is to sell quickly for its full value. Because interest rates are more volatile in the short term, the premium on short- versus medium-term securities will be greater than the premium on medium- versus long-term securities. For example, a three-year treasury note might pay 1% interest, a 10-year treasury note might pay 3% interest and a 30-year treasury bond might pay 4% interest. This is the same notion applied when cross listing as investors will prefer a security which can be easily sold rather than one held for long periods without an available market. The seminal study of Amihud and Mendelson (1986, 1988 and 1989) states that investors require higher returns to hold stocks with lower liquidity to compensate them for the higher transaction costs and that lower trading costs induce greater participation and better risk sharing.

2.2.3 The Liquidity Hypothesis

The Liquidity Hypothesis, as established by Amihud and Mendelson (1986), states that since U.S. capital markets are very liquid, firms who cross-list can raise capital at a lower cost than at home, especially companies from emerging markets. Amihud and Mendelson

(1986) suggest that companies who reside on capital markets with poor liquidity should cross-list on exchanges with superior liquidity, which would decrease their liquidity risk premium and their expected return. They claim that the liquidity risk and expected returns will decrease and, consequently, share price will rise.

2.3 Determinants of Liquidity of Shares

Demsetz (1968), determinants of liquidity are trading volume and number of trades, volatility, firm size and price. There is a general recognition of seven factors influencing asset liquidity. Lippman and McCall (1986) enumerate two key factors that determine asset liquidity. Their second cause of liquidity is the degree of impediments to transfer of legal title. This includes general transaction costs of trade (including location), an asset's holding costs, and beliefs by asset holders of an intrinsic asset value should influence asset liquidity. Hicks (1962) offers a third cause of an asset's liquidity, the moments of asset returns should also influence liquidity (odd moments positively and even ones negatively if they enter the household's optimization). A fourth determinant of liquidity is market power by market makers. Most modelers assume that market makers make zero profits (Bagehot, 1971) and Glosten (1987)), but in the presence of market power, market makers will extract their rents in the form of larger bid-ask spreads, and therefore reduce liquidity.

They state a fifth cause of liquidity, the dispersion of information. They state that a lower ratio of investment by noise investors to that by informed investors increases the spread and therefore decreases liquidity. A sixth determinate of liquidity is provided by Pedersen and Brunnermeier (2005).They model the presence of predatory traders who

opportunistically engage in trading activities to exacerbate the liquidity constraints of other traders. They state that this behavior decreases liquidity in that market. Sometimes total trade volume is a seventh determinate of liquidity. In that way, barriers to participation and trade in markets might ultimately combine with the factor of information dispersal to have a magnified effect. High transaction costs of trade could be due to rules restricting who can trade. If increasing returns to scale in trading systems allows multiple equilibria, then perhaps removing participation restrictions would allow a shift to a new equilibrium where trading is both cheaper and more common. If these low trading costs attract even more uninformed participants, then liquidity could rise still higher.

2.4 Empirical Studies

Mittoo (1992) and Bancel and Mittoo (2001) report, on the basis a survey done with Canadian and European firms, that managers perceive that international cross listings increase the total trading volume of the share of a firm. In fact several studies have looked upon the effects of cross listing on trading volume. Karolyi (1998) and the references therein conclude that there is overwhelming evidence that the total volume of trading increases following an international cross listing. In many cases the evidence shows that trading volume in the home market also increases thus increasing the liquidity of the shares.

Mittoo (1992) and Halling *et al.* (2004) argue that the foreign sales of a firm increase the trades of cross listed shares in the international markets. This stylised fact may reflect that foreign investors prefer, and trade more, assets of firms that have sales in the foreign country. This is related with Merton's (1987) investor recognition hypothesis (IRH).This study examined the increase in the U.S. investor base conditional on ownership structure using a 16- year panel of 277 Canadian firms listed on U.S. stock exchanges between 1989 and 2004. The work is related to that of Bris, Cantale, and Nishiotis (2005) who used an event study of 21 dual-class firms that list one of their share classes in the U.S. to disentangle competing cross listing hypotheses. They find that improved liquidity and access to foreign investors are the most important effects, while the effects of improved investor protection are economically small. In this study they examine a broader group of firms, both firms that are closely- and widely-held and firms that are cross-listed and not cross listed, while controlling for liquidity effects. This study is also related to Doidge et al. (2006) who find that foreign firms with concentrated ownership that cross-list on a U.S. exchange benefit more than widely-held firms in terms of increased valuation and analyst coverage.

A study by Benardo *et al*.(2004) on privatization and stock market liquidity was done using panel data of 19 developed countries found out that the cross listing of shares exhibits an even stronger effect, suggesting that international offerings eliminate informational barriers and attract foreign investors to the domestic market, thereby reducing its risk premium. The analysis in this paper shows that privatization enhances the liquidity of the stock market as a whole, and also the liquidity of private firms' shares.

In other words, besides the obvious impact of Share Issue Privatization (SIP) on the liquidity of privatized stocks, privatization has a positive spillover effect on the price impact of other (non-privatized) stocks. Privatization-related improvements in market liquidity are therefore not simply driven by the increased liquidity of privatized stocks, but also by the positive externality that SIP imposes on the domestic market. This analysis shows that the externality effect of SIP is associated to the cross listing of privatization shares in international markets. Through privatization, governments allow for the trading of company related risk which was not tradable before. Through cross listings, governments enhance foreign investors' recognition and participation in domestic assets, which is reflected in higher overall liquidity and turnover in domestic markets. Increased participation of international investors lowers the overall risk borne by domestic investors: it reduces the risk premium required for holding purely domestic securities thereby increasing their liquidity.

A number of studies examine patterns in bid-ask spreads, price volatility and trading volumes in ADRs after they have cross-listed on U.S. markets (Forster and George (1995); Chan, Fong, Kho and Stulz (1996); Werner and Kleidon (1996)). Foerster and Karolyi provide evidence of a 29 percent increase in intraday volume and a 44 basis point decline in intraday effective spreads for 52 Canadian companies listing in the U.S. For a sample of 128 NYSE-listed non-U.S. stocks, Smith and Sofianos measured an increase in the combined value of trading from $240 million per stock per day to $340 million, a 34 percent increase. Bris, Cantale and Nishiotis find evidence that supports the liquidity hypothesis, and more specifically, that the premium is linked to the relative liquidity of

the two classes of shares. Their data shows that after the listing, the company's liquidity significantly improves for both classes of shares in the domestic market.

Yet there are contradictory results on the impact of international cross listings in terms of the fragmentation of the order flow. While Levine and Schmukler (2003) find a reduction in the trading volume of cross listed shares in the home market Halling, Pagano, Randl and Zechner (2004) report that the increase in trading volume that occurs in the international market immediately after the international cross listing is followed by a decline later on.

Several other studies claim that the effects on trading volume and on fragmentation of the order flow vary across stocks, markets, and listing locations (Mittoo (1992); Domowitz, Glen and Madhavan (1998); Hargis (1997); Doidge (2001); Baruch, Karolyi and Lemmon (2003); Halling *et al*. (2004)). For example, Baruch *et al.* (2003) show that the distribution of trading volume is related with the correlation between the return of the cross listed stock and other international traded stocks. The same authors also refer that the effects also depend upon the country of origin of the cross listed stock, in particular, whether it originates from an emerging or developed market. Doidge (2004) shows that the impact in trading volume is a function of the changes in ownership that occur after the listing. Halling *et al.* (2004) show that the ratio between home and total trading is a function of the characteristics of the cross listed firm such as industry affiliation, foreign sales, etc. and of the characteristics of the home and international exchanges such as differences in investor protection and in information disclosure.

One related question analysed in several studies is whether the cross listing of a particular stock has any impact on the development of the home stock market. Hargis (2000) analyses whether the international listing of Latin American stocks on US stock markets hinders the development of markets by deviating order flows from the original markets. He reports that in general there seem to be benefits associated with cross listing, even if these vary across markets. Yet other studies find contradictory evidence and report a negative impact for the home market liquidity (Claessens, Kingebiel and Schmukler (2002); Moel (2001); Jaykumar (2002)).Karolyi (2004) finds a significant positive relation between the number of cross listings and a subsequent increase in the aggregate liquidity of the originating home market. This result seems to be driven by an increase in the liquidity of cross listed shares with no spillover effects for the other (non-cross listed) securities. Thus the ratio of the turnover of non cross listed in total home turnover necessarily decreases.

The seminal study of Amihud and Mendelson (1986, 1988 and 1989) indicates that investors require higher returns to hold stocks with lower liquidity to compensate them for the higher transaction costs and that lower trading costs induce greater participation and better risk sharing. The same authors show that average returns are associated with bid-ask spreads (used as a proxy measure of liquidity) even after controlling for other systematic risk measures. Datar, Naik and Radcliffe (1998) confirm that liquidity is a priced risk factor using turnover as an alternative measure of liquidity. However, Rouwenhorst (1999), examining a sample of emerging markets' firms, does not find a significant relation between return and turnover. Some authors such as Foerster and

Karolyi (1999)) refer that this reduction of risk could also be associated with greater liquidity.

Even though it concerns primarily the cross listed firms, foreign participation will also benefit the liquidity of shares traded only in the local market. If the returns of privatized and local companies are positively correlated, foreigners will share some of the risk borne only by domestic investors prior to privatization. This reduces the required risk premium and thereby increases the value of domestic shares. Fernandes (2005) analyses the impact of the first ADR on the liquidity of non cross listed home stocks and finds a positive effect. The few other studies that address the impact of cross listing on the non cross listing home shares focus on the impact on returns Melvin and Valero-Tonone (2004); Bradford, Martin and Whyte (2002) and claim that the observed effects (positive or negative) are either information or competition-driven.

Doidge et al., (2003) argue that cross listing in a highly reputable exchange enhances the legal protection of the firm's investors and reduces the agency costs of controlling shareholders. This is reflected in a cross-listing premium, provided that the shares are cross-listed in a highly reputable exchange such as the NYSE rather than OTC or upstairs markets. This argument suggests that, for a given number of stocks traded abroad, the positive impact of a cross listing on liquidity should be stronger for listings in the NYSE than in markets with weaker listing standards. Moreover, we expect that the increase in liquidity will mainly affect privatized companies listed in the NYSE, without generating strong spillover effects to companies that remain domestic and do not commit to alleviate

the expropriation of their minority shareholders by accepting stricter corporate governance standards.

However, not all empirical evidence supports the Liquidity Hypothesis Theory. Wang, Chung and Hsu (1996) show that, although, there were no significant abnormal returns for Asian companies before they cross-listed, nevertheless, returns did drop markedly after cross-listing. Hence, it can be concluded that the study of Wang, Chung and Hsu,(1996) find no evidence that there was a listing effect such as increased liquidity for Asian companies who cross-listed in the 1990s.Kuria (2008) determined the short-term and long-term effects of cross-border listing announcements on companies listed at the NSE and their post listing performance, and reported that cross-listing announcements have statistically significant negative effects on stock returns. In fact, the non cross-listed firms had higher daily turnover ratios than cross-listed firms, an indicator of increased activity hence liquidity. Moreover, Mugo (2010) and Mugo et al. (2011) have reported that cross listing may affect firm liquidity and P/E ratios.

The above empirical studies have outlined the following as the independent variables of the study: the size of the international stock market measured by the aggregate market capitalization, the size of the home stock market measured by the aggregate market capitalization, percentage of foreign sales to total sales of firm$_i$ as of year-end just before listing date and the ratio of the absolute market capitalization of the cross listed firm$_i$ and relative to market capitalization of the home market while the dependent variable is the proportion of international trading in global trading of firm$_i$. The null hypothesis being that there is no significant relationship between cross listing and liquidity of the cross

listed shares against an alternative hypothesis that there is a significant relationship between cross listing and liquidity of the cross listed shares.

2.5 Summary of Literature Review

From the above theoretical and empirical studies it is apparent and clear that cross listings have been widely researched on and empirically evaluated. This shows the great amount of interest in the area as the world gears to a global trade platform. The literature has clearly demonstrated the impact of cross listing on liquidity with much of it demonstrating a positive effect although some scholars and researchers found negative effects of cross listing on liquidity.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section will describe the methodology employed to carry out the study, the population, and the sample of the study, the analytical model employed and the tests of significance.

3.2 Research Design

To show the relationship between cross listing and liquidity of shares cross listed in the East African region the study analysed the turnover of shares i.e. the number of shares traded multiplied by the price of the shares. This was done for a period of 6 months before and after cross listing by uses an event study research design or procedure. The researcher will evaluate changes in absolute measures of trading volume (number of

stocks or turnover) and relative to the trading in aggregate market. Secondly the study analysed whether these changes are persistent. The study used an estimation period of 180 days before the event window and also estimate the same results post-event window.

To test the effects on trading volume, the study compared total trades before and after the international cross listing. The study controlled for the changes in trading in a particular market that are not associated with the cross listing event by standardizing the global volume (home and international trades) by the total trading volume of the home market. Event study methodology has been used extensively in finance, economics and political economy literatures to empirically estimate market reactions to specific events by studying the reactions of relevant variables around the event window. The methodology has been applied to a variety of firm specific and economy-wide events (Beaver, 1968, May 1971, Patell, 1976, Bonnier and Bruner, 1989, Fox and Opong, 1996, Fama, 1991, MacKinlay, 1997, Adelegan, 2003, 2006a and b, 2007a and b, and 2008a).

3.3 Population

The population for the study was all the listed firms in the East African Stock Exchanges namely the NSE, DSE, USE and RSE. The focus of the study was the cross listed firms in these exchanges. This is a total of 8 companies namely Kenya Commercial Bank, Nation Media Group, Centum Investments Limited, Umeme Limited, Jubilee Holdings Limited, Equity Bank Limited, East Africa Breweries Limited and Kenya Airways.

3.4 Data Collection

The data was collected from these exchanges specifically from the NSE and from the cross listed companies. This was secondary data that was mainly the daily volume of shares traded both in the home and international market and the prices of the respective trades for the cross listed shares as this study sought to evaluate the effect of cross listing on the liquidity of the cross listed shares and also the sales of the company in the international market and the home market. This helped to evaluate whether the increase (decrease) results solely from trades in the international market or from an increase in transactions in the home market. This data covered 6 months before and after the respective companies cross listed their shares.

3.5 Data Analysis

The data was analysed by use of a statistical and research package namely (SPSS) with various data display tools for example, tables to analyse the available data for ease of explanation and display. The reliability and validity of the data was be enhanced by the use of the statistical package to check for consistency and accuracy of the data.

To test the effects on trading volume, the study compared total trades before and after cross listing by evaluating changes in absolute measures of trading volume (number of stocks or turnover) and relative to the trading in aggregate market. The study controlled the changes in trading in a particular market that are not associated with the cross listing event by standardizing the global volume (home and international trades) by the total trading volume of the home market.

This study employed an expanded and adapted gravitational market model as below. Traditional gravitational models predict that both the size of home and international markets positively impact trading in both locations according to the findings of Levine and Schumukler (2005), Halling *et al.*(2004).

$$Ln\ (P_i) = \beta_0 + \beta_1 ln\ (MC^I * MC^H) + \beta_2 PFS_i + \beta_3 SIZE_i + \varepsilon_i$$

Where,

P_i is the proportion of international trading in global trading of firm *I* i.e. trading volume in international market divided by total trading in home and international market;

MC^I – represents the size of the international stock market measured by the aggregate market capitalization;

MC^H – represents the size of the home stock market measured by the aggregate market capitalization;

PFS_i – is the percentage of foreign sales to total sales of firm *i* as of year-end just before the listing date;

$SIZE_i$ – is given by the ratio of the absolute market capitalization of the cross listed firm *i* and relative to market capitalization of the home market;

ε_i - is the error term.

MC^I, MC^H, PFS_i and $SIZE_i$ represent the measures of cross listing in the analytical model.

The above relationship was tested for significance by use of a t-test at the 95% confidence level.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This section covers the analysis of data collected from secondary sources in line with the objective of the study which was to establish the relationship between cross listing and liquidity of the cross listed shares in the East African securities Exchanges. The findings are presented in form of proportions, means and tables. The data was analysed by the use of SPSS.

4.2 Description of Data

The study looked at all the companies whose securities are cross listed in the East African Stock Exchanges as tabulated in the table below.

Table 4.2.1: Regional Cross-Border Listings in the EAC Market

Company	Primary Listing	Date of Cross listing	Bourse where Cross listed

EABL	NSE	28th March 2001	USE
EABL	NSE	29th June 2005	DSE
KQ	NSE	28th March 2002	USE
KQ	NSE	1st October 2004	DSE
JHL	NSE	14th February 2006	USE
JHL	NSE	20th December 2006	DSE
KCB	NSE	29th November 2008	USE
KCB	NSE	17th December 2008	DSE
KCB	NSE	18th June 2009	RSE
EQUITY	NSE	18th June 2009	USE
NMG	NSE	19th October 2010	USE
NMG	NSE	2nd November 2010	RSE
NMG	NSE	21st February 2011	DSE
CENTUM	NSE	11th February 2010	USE
UMEME	USE	14th December 2012	NSE

Source: Research Data

The entire cross listed firms have a primary listing in Kenya's NSE except Umeme Limited whose primary listing is in Uganda's NSE. As exhibited in the above table, all the cross listings took place at the turn of the millennium. This indicates the strides made by the East African Securities Exchanges towards liberalizing their operations and creating a suitable environment for investments in the region.

Table 4.2.2: Trading volumes of shares before and after cross listing

Company	Bourse where cross listed	Trades before	Trades After	Increase (Decrease)
EABL	USE	250,000.00	427,324.00	177,324.00
EABL	DSE	609,885.00	703,904.00	94,019.00
KQ	USE	350,000.00	1,344,882.00	994,882.00
KQ	DSE	1,024,631.00	710,000.00	(314,631.00)
JHL	USE	123,400.00	281,000.00	157,600.00
JHL	DSE	146,997.00	293,518.00	146,521.00
KCB	USE	1,245,798.00	1,775,746.00	529,948.00
KCB	DSE	1,877,674.00	2,751,471.00	873,797.00
KCB	RSE	2,946,764.00	2,899,656.00	(47,108.00)
EQUITY	USE	325,670.00	459,060.00	133,390.00
NMG	USE	325,670.00	459,060.00	133,390.00

NMG	RSE	675,438.00	1,125,732.00	450,294.00
NMG	DSE	450,876.00	804,639.00	353,763.00
CENTUM	USE	890,432.00	966,222.00	75,790.00
UMEME	NSE	25,123.00	129,029.00	103,906.00

Source: Research Data

As shown in the table above, the entire cross listed companies showed an increase in shares traded after cross listing except for KCB in Rwanda and Kenya Airways in Tanzania. Only a few securities showed a decrease in the volume of shares traded with slight decreases in the volumes.

Table 4.2.3: Trend in Market Capitalization in US Dollars

Year	NSE	DSE	USE	RSE
2001	1,049,800,000	398,069,800	35,141,940	
2002	1,423,070,000	707,364,100	49,000,000	
2003	4,178,210,000	658,774,100	47,000,000	
2004	3,890,970,000	669,596,200	96,000,000	
2005	6,383,990,000	587,860,800	103,000,000	
2006	11,378,040,000	541,138,800	116,000,000	

2008	13,386,590,000	1,293,318,000	3,078,672,000	
2009	10,916,560,000	1,264,000,000	3,744,917,000	635,800,000.00
2010	10,755,990,000	1,538,748,000	1,787,863,000	1,169,800,000.00
2011	14,460,870,000	1,803,030,000	7,727,270,000	1,589,300,000.00
2012	10,202,600,000	398,069,800	7,294,133,000	1,907,160,000.00

Source: Research Data

From the table above, market capitalization for the East Africa Bourses have been rising with time and in tandem to cross listing of companies in the mentioned exchanges. The NSE has however maintained an average market capitalization of its firms due to more shares being listed in the foreign bourses as opposed to being floated in the home market. This is because all of the cross listings have originated from the NSE except Umeme Limited.

4.3 Interpretation of Results

To establish the relationship between cross listing and liquidity of the cross listed shares, the study adopted the model below:

$$Ln\ (P_i) = \beta_0 + \beta_1 ln\ (MC^I * MC^H) + \beta_2 PFS_i + \beta_3 SIZE_i + \varepsilon_i$$

Regression analysis also produced correlation, coefficient of determination and analysis of variance (ANOVA). Correlation sought to show the nature of relationship between dependent and independent variables and coefficient of determination showed the strength of the relationship. Analysis of variance was done to show whether there is a significant mean difference between dependent and independent variables. The ANOVA was conducted at 95% confidence level.

Table 4.3.1: Model Goodness of Fit

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.675[a]	.456	.307	2.32504

Source: Research Data

Regression analysis was used to establish the relationship between cross listing and liquidity by use of the factors that affect the variables. The results showed a correlation value (R) of 0.675 which depicts that there is a good linear dependence of cross listing on liquidity of the cross listed shares. With the adjusted R Square of .307, the model showed that there are other factors that affect liquidity of cross listed shares which are not included in this model. Thus the model does not fit the data perfectly as only 30% of the variability in the sample data is explained by the model leaving out 70% of the variability unexplained by the model around the mean of the sample data.

Table 4.3.2 Correlation Analysis

		$LN(MC^{I}*MC^{H})$	PFS_i	$SIZE_i$
$LN(MC^{I}*MC^{H})$	Pearson Correlation	1	.174	-.011
	Sig. (2-tailed)		.534	.969
	N	15	15	15
PFS_i	Pearson Correlation	.174	1	-.246
	Sig. (2-tailed)	.534		.377

	N	15	15	15
SIZE$_i$	Pearson Correlation	-.011	-.246	1
	Sig. (2-tailed)	.969	.377	
	N	15	15	15

Source: Research Data

Table 4.3.3: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	49.787	3	16.596	3.070	.073
	Residual	59.464	11	5.406		
	Total	109.252	14			

Source: Research Data

ANOVA statistics was conducted to determine the differences in the means of the dependent and independent variables thus show whether a relationship exists between the two. The P-value of 0.073 implies that cross listing has a significant relationship to liquidity of cross listed shares which is significant at 5% confidence interval. This also depicted the significance of the regression analysis done at 95% confidence level.

Table 4.3.4: Regression Coefficient Results

Model	Unstandardized	Standardized	t	Sig.

		Coefficients		Coefficients		
		B	Std. Error	Beta		
	(Constant)	109.161	46.461		2.350	.039
	$Ln(MC^{I}*MC^{H})$	-2.028	.852	-.538	-2.381	.036
	PFS_i	-3.254	2.477	-.306	-1.314	.216
	$SIZE_i$	3.852	13.616	.065	.283	.782

Source: Research Data

From the table above, there is a negative relationship between $Ln(P_i)$ and $Ln\ (MC^{I}*MC^{H})$, a negative relationship between $Ln(P_i)$ and PFS_i and a positive relationship between $Ln(P_i)$ and $SIZE_i$. The established regression equation is:

$$Ln(P_i)= 109.161-2.028Ln(MC^{I}*MC^{H})-3.254PFS_i+3.852SIZE_i$$

The regression above shows that when all other variables have a value of zero, the proportion of international trading of firms cross listed in the East African Exchanges will be 109.161 to the local trading. Also, a unit of change in $Ln(MC^{I}*MC^{H})$would result in a reduction of the proportion of international trading to local trading of the firms by 2.028 with a t-statistic of 2.381 at 0.039 at the 95% confidence interval. Moreover, a unit of change in PFS_i would result in a reduction of the proportion of international trading to the local trading by 3.254 ceteris peribus. The ratio of absolute market capitalization of $firm_i$ relative to the market capitalization of the home market given by $SIZE_i$, was found

to be directly related to $Ln(P_i)$ whereby a unit of change in the $SIZE_i$ will lead to an increase in $Ln(P_i)$ by 3.2852 units holding other factors constant.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study and makes conclusion based on the results. The implications from the findings and areas for further research are also presented. The section presents the findings from the study and also based on literature from other scholars as enumerated in the literature review.

5.2. Summary of Findings

Based on the results of the study, the volume of shares traded increased after cross listing for all firms cross listed in the East African Securities Exchanges. This is due to an increase in the investor base. This is also due to the fact that cross listing improves the image of the company and thus investors would be more willing to invest in the firm. Also additional information about the company comes into the market with more investors in the cross listed market having more knowledge about the firm.

The market capitalization of the bourses where cross listing was done also improved significantly. However, the study does not find a significant relationship between cross listing and the liquidity of the shares in the East African Securities Exchanges. Of note is the increase in market capitalization during the month of cross listing. However, the volumes of shares sold and bought after cross listing has been low. This however picks after 6 months as more information about the firm reaches the market.

The study also finds a significant positive relationship between the proportion of international trading of cross listed firms and their percentage of sales in the international market to that in the home market. There also exists a negative relationship between cross listed firms' trading proportion in the international market to the absolute market capitalization of the cross listed firm to the market capitalization of the home market.

5.3 Limitations of the Study

The study was carried out in the backdrop of a few challenges among them time limitation and the cost of data. This may have hampered on the accuracy of the analysis carried out or the data gathered. The study also covered 8 companies and thus the results may be affected by the sample size. A higher sample size would enhance the results of the study but there are only 8 cross listed firms whose primary listing is in the East African Securities Exchanges. This may have led to the huge standard errors as reported in the analysis of the model.

The researcher also encountered huge problems in getting data on financial performance of the foreign firms especially sales or revenues. The study was conducted in the context of the East African Region and thus the results do not represent the phenomena of cross

listing in the emerging economies or the world at large but the East African region in particular.

5.4 Recommendations for Further Studies

The study recommends other researchers to investigate and highlight the future of cross listing in East Africa especially now with the region gearing to integrate to a common market with liberalization of the financial systems. The study also recommends further studies on the importance of liquidity in cross listing as one of the factors considered while cross listing shares in the East African Exchanges. It would also recommend a study of the development of the East African Securities Markets especially with the introduction of new segments in the Securities exchanges for example, the Emerging Market Segments in the NSE.

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APPENDICES

Appendix i

Listed Firms in USE

COUNTER	ISIN	FULLNAME
ALSI	UG0000000071	USE All Share Index (100@31.12.2001)
BATU	UG0000000022	British American Tobacco Uganda
BOBU	UG0000000055	Bank of Baroda Uganda
DFCU	UG0000000147	Development Finance Company of Uganda Ltd
EABL	KE0009081092	East African Breweries Limited
JHL	KE0000000273	Jubilee Holdings Limited
KA	KE0009081084	Kenya Airways
NVL	UG0000000162	New Vision Printing and Publishing Company Ltd
SBU	UG0000000386	Stanbic Bank Uganda

UCL	UG0000000014	Uganda Clays Limited
EBL	KE0000000554	Equity Bank Limited
KCB	KE0000000315	KCB Group
NIC	UG0000000758	National Insurance Corporation
NMG	KE0000000380	Nation Media Group
CENT	KE0000000265	Centum Investment Company Ltd
USE LCI	UG0000000881	USE LOCAL COMPANY INDEX
UMEME	UG0000001145	UMEME LIMITED

Appendix ii

Cross Listed Firms in East Africa

Company	Primary Listing	Date of Cross listing	Bourse where Cross listed
EABL	NSE	28th March 2001	USE
EABL	NSE	29th June 2005	DSE
KQ	NSE	28th March 2002	USE
KQ	NSE	1st October 2004	DSE
JHL	NSE	14th February 2006	USE
JHL	NSE	20th December 2006	DSE
KCB	NSE	29th November 2008	USE
KCB	NSE	17th December 2008	DSE
KCB	NSE	18th June 2009	RSE
EQUITY	NSE	18th June 2009	USE
NMG	NSE	19th October 2010	USE
NMG	NSE	2nd November 2010	RSE
NMG	NSE	21st February 2011	DSE
CENTUM	NSE	11th February 2010	USE
UMEME	USE	14th December 2012	NSE