

**IMPACT OF CROSS BORDER LISTING ON SHARE LIQUIDITY:  
A CASE STUDY OF NSE LISTED FIRMS CROSS LISTING IN OTHER EAC  
SECURITY EXCHANGES**

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## **DECLARATION AND RECOMMENDATIONS**

### **DECLARATION**

This project is my original work and has not been presented for the award of any other degree or diploma in a university.

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### **RECOMMENDATIONS**

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

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## **DEDICATION**

This Research Project is dedicated to my Parents Prof. Matheka and Mrs. Makau. Thank you for the way you raised me, encouraging me to work hard. You showed and taught me good virtues. I appreciate for the much needed financial and emotional support that you have always given me. May God make you live long to see the fruits of your son's hard work. You always stood by me and gave me hope in all I undertook. I would also like to dedicate this work to my sisters; Grace Makau, Beatrice Koki, Winnie Mulia and Charity Mumbe.

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## **ABSTRACT**

The purpose of this study was to examine the impact of cross listing on share liquidity for cross listed firms within East Africa with emphasis on the domestic market which is the Nairobi Securities Exchange (NSE). A census study was carried out for all the firms that cross listed in the East African Community (EAC) in the last five years and included, Kenya Commercial Bank, Equity Bank, Nation Media Group and Centum Investments. Traded volume and turnover were used as measures of liquidity where their means were calculated pre- and post- cross listing and tested for significance using a paired t- test at five percent level. Secondary data was collected and analyzed from the NSE. Most of the results were not statistically significant. Share liquidity improved for Equity Bank, Nation Media Group (NMG) and Centum Investments measured by traded volume with that of Equity Bank and Centum being statistically significant. Kenya Commercial Bank (KCB) share liquidity declined after cross listing, though the decline was not statistically significant. Share liquidity measured by turnover improved for NMG and Centum shares, while it declined for Equity Bank and KCB shares after cross listing. Of these results only Centum's was statistically significant. This implied that liquidity improved for NMG and Centum shares, while it declined for Equity and KCB shares. It can therefore be generally concluded that cross listing impacts a firm's shares liquidity both positively and negatively according to the measure of liquidity utilized, although in most cases that impact was not statistically significant. Based on the findings of the study, it is recommended that managers and policy makers cross list for other reasons such as penetration of new markets and not stock liquidity since most of the changes in liquidity were not statistically significant.

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## **LIST OF ACRONYMS/ABBREVIATIONS**

1. IPO – Initial Public Offer
2. NSE – Nairobi Securities Exchange
3. EAC – East Africa Community
4. USE – Uganda Securities Exchange
5. DSE – Dar Es Salaam Stock Exchange
6. RSE – Rwanda Stock Exchange
7. ATS – Automatic Trading System
8. CDS – Central Depository System
9. CMA – Capital Markets Authority
10. ROTCE–Rwanda Over The Counter Trading Exchange
11. CMSA - Capital Markets and Securities Authority
12. EASEA – East African Stock Exchanges
13. CMDC – Capital Markets Development Committee
14. EASRA – East African Securities Regulatory Association
15. EASBA – East African Stock Exchange Brokers Association
16. NSX – Namibia Stock Exchange
17. JSE – Johannesburg Securities Exchange

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Background Information**

Many companies depend on equity capital to finance their businesses. A company will raise equity capital through the sale of its stock to the public by listing on a stock exchange through an Initial Public Offer (IPO). Through an IPO a company will be valued and an opening price will be set for its shares. The amount of capital that can be raised through the IPO will depend on perceived value of the shares and also on how much interest there is by investors in the shares when they are issued. An IPO will offer a company that has reached a certain size and has a strong reputation, a good route to raising a large sum of capital that will enable it to expand or invest in assets that will enable it to grow in the future. Another advantage of going public is that it results in share liquidity. Shares are considered liquid if they can be easily converted into cash. An IPO leads to share liquidity because, thereafter, the company's shares will trade on a public market, in this case the Nairobi Securities Exchange.

#### **1.1 The Nairobi Securities Exchange**

The Nairobi Securities Exchange (NSE) offers a platform for companies to list their shares in Kenya. The NSE was formed in 1954 and is one of the most active capital markets in Africa and the fourth largest Sub-Saharan Africa security exchange with 61 listed companies and 21 brokerage firms. Trading takes place on Mondays through Fridays between 10.00 am and 3.00 pm. NSE was a regional security market up to 1972 when it lost its regional character following the nationalization, exchange control and other inter-territorial restrictions introduced in neighbouring Tanzania and Uganda. Currently the ceiling on foreign investments is 40% for institutions and 5% for individuals (Mwanza, 2006). The Security Exchange was characterized by low activity until the 1990's. The most spectacular performance was exhibited in 1994 when the turnover rose by 620% from Kshs 378 million in 1992 to Kshs 2.7 billion in 1994. Over the same period, the traded volume increased by 180% from 15.3 million shares to 42.8 million shares. Due to share price appreciation, market capitalization surged from kshs 25 billion to Kshs 137 billion during the period, (Mbaru, 2007). Over the last 10 years, turnover at the NSE has grown phenomenally from Sh2.9 billion in 2002 to Sh95 billion in 2006 and Sh395 million daily in 2012. The Capital Markets Authority, in its 2013-2017 strategic plan, put the target for a combined bonds and equities turnover at Sh1.04 trillion for 2013, rising to Sh6.83 trillion in 2017. While the number of

CDS accounts that have been opened have increased from 80,000 in 2005 to about 1.9 million accounts to date (CMA, 2013).

The NSE successfully installed a Central Depository System (CDS) in November 2004 and an Automated Trading System (ATS) in November 2006 (Onyuma et al., 2012). The CDS ensures that delivery and settlement is done script less while the ATS ensures that orders are matched automatically and are executed on a first come first serve basis. The NSE is regulated by the Capital Markets Authority (CMA) under the jurisdiction of the ministry of Finance. The CMA strives to ensure that companies disclose to investors all they need to know before admitting them to the bourse and on a continuous basis after listing and has the following as its goals; to achieve a large and efficient capital market, allowing for wider diversification of risks and greater and more efficient allocation of resources, develop adequate regulations that provide the market with freedom for development and help protect investors and markets from financial fraud and crimes, to develop a deep and vibrant capital market through education of investors. In addition it stresses on good corporate governance to influence entry of investors into the capital markets as this gives investors confidence (CMA, 2012).

According to Stulz (1999) when firms decide to cross-list, there are certain things they need to have ready. These include the presence of an independent board of directors to ensure that the global investors will have confidence that management will properly utilize the resources injected in the firm. Secondly, the firm must receive certification in the capital markets. Securing highly reputed investment banks will help the firm secure the lowest issue costs. Thirdly, legal protection of the minority shareholders to ensure that their rights are not over stepped. Lastly, the firm must abide by the stringent disclosure requirements set by the Security Exchange.

For a company that is already listed on an exchange, an alternative route is to cross list. Cross listing is where a firm lists its shares for trading on at least two stock exchanges located in different countries. During the period 1986 to 1997 cross listing happened on the following stock exchanges: Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris, Stockholm, Vienna, Easdaq, Amex, Nasdaq, and NYSE.<sup>14</sup> Since until November 1998 European companies could not list their shares directly on U.S. exchanges, all the cross-listings on U.S. markets in by European companies were effected via American Depository Receipts (ADRs). ADRs are issued by a U.S. depository bank and represent shares held overseas. They confer

to their holders the same income and voting rights as the underlying shares and trade in the United States like other securities, although a small fee per share must be paid to the depository bank for each trade and when dividends are cashed (Halling et.al.(2004)).

Cross listing has gained significance over the past few years since the signing of the East Africa Community treaty in 1999. The geography of cross listing has changed considerably with Nation Media Group, Kenya Airways, Kenya Commercial Bank, Jubilee Holdings, Equity Bank, Centum Investments and East African Breweries, which are Kenyan firms, listing in Uganda, Tanzania and Rwanda (Mwanza, 2006).

Eight (8) firms have cross listed from the NSE to other markets in the region (Appendix 1). Listing on NSE provides qualifying companies with the broadest access to investors, greatest market depth and liquidity, cost-effective access to capital, highest visibility, fairest pricing, and investor benefits.

Cross border listing in East Africa has been used by regionally recognized firms such as, Kenya Airways and East African Breweries Limited to increase their visibility and distinguish themselves from others. However this trend has changed with more firms cross listing such as Nation Media Group and Equity Bank which are cross listed in the Dar es Salaam Stock Exchange (DSE) and Uganda Securities Exchange (USE) respectively citing more monetary and non-monetary benefits that will accrue to them if they cross list in the East African Community (EAC) market.

When firms cross list and sell their shares in a foreign market they aim to accrue some of the benefits as observed by Romana (2006), they include improving the liquidity of its existing shares and support a liquid secondary market for new equity issues in foreign markets. Firms from countries with small illiquid capital markets often outgrow those markets and are forced to raise new equity abroad. In order to maximize liquidity, the firm ideally should cross-list and issue equity in a more liquid market, secondly, firms will cross list to increase its share price by overcoming mispricing in a segmented and illiquid home capital market, thirdly, is to increase the firm's visibility and political acceptance to its customers, suppliers, creditors, and host governments. Listing in the foreign markets brings the opportunity to enhance corporate image, advertise trademarks and products, get better local press coverage, and become more familiar with the local financial community in order to raise working capital locally, establish a secondary market for shares used to acquire other firms in the host

markets, i.e. companies offer their shares as partial payment and it is considerably more attractive if those shares have a liquid secondary market (Romana, 2006).

The EAC is the regional inter governmental organization of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Rwanda and Republic of Burundi with its headquarters in Arusha, Tanzania. The treaty of establishment of the East African Community (EAC) was signed on November 1999 and entered into force on 7<sup>th</sup> July 2000 following its ratification by the original three partner states, Kenya, Uganda and Tanzania. The Republic of Rwanda and Republic of Burundi acceded to the EAC treaty on 18<sup>th</sup> June 2007 and became full members with effect from 1<sup>st</sup> July 2007.

The EAC market currently has four securities exchanges which include the Nairobi Securities Exchange (NSE), Uganda Securities Exchange (USE), Dar es Salaam Stock Exchange (DSE) and Rwanda Stock Exchange (RSE). The NSE is the largest securities exchange in East Africa as discussed earlier. The DSE is the second largest securities exchange in EAC which was incorporated in September 1996 and trading started in April 1998. Trading takes place weekly from Monday to Friday between 10:00 am and 12:00 noon. It is monitored and supervised by the Capital Markets and Securities Authority (CMSA). There are currently twenty listed firms of which six firms have cross listed from the NSE to the DSE, including Nation Media Group, Kenya Airways, Kenya Commercial Bank, Jubilee Holdings, East African Breweries, and Uchumi supermarket in 2014.

The third securities exchange in the EAC is the USE founded in June 1997. It is operated under the jurisdiction of Uganda's CMA which in return reports to the Bank of Uganda. The exchange opened for trading in 1998 and trading occurs Monday to Friday. There are currently 16 listings, seven of which are cross listed from the NSE, they include, Nation Media Group, Kenya Airways, Kenya Commercial Bank, Jubilee Holdings, East African Breweries, Equity Bank, Centum Investment Company Limited and Uchumi Supermarkets. Umeme with a primary listing in the USE cross listed to the NSE in 2013.

The Rwanda Stock Exchange is the youngest Stock Exchange in the region and opened for business on 31<sup>st</sup> January 2011 succeeding from the operations of the Rwanda over the Counter Exchange (ROTCE) opened in January 2008. There are currently 2 firms cross listed from the NSE; Nation media Group and Kenya Commercial Bank in 2009 and 2010 respectively (Onyuma et al, 2012), Uchumi Supermarkets has also cross listed to the RSE. The integration of East African Stocks has eased and encouraged firms to cross list in the

region which will be finalized once the appropriate regulatory framework is in place. The markets in the region aim to facilitate the availability of listed securities in the four markets and cross listing is seen as a key activity to achieving this objective.

Liquidity refers to the ease of dealing in a security whether shares, options, warrants or some other instrument and turning them into cash. It can also refer to how easily shares can be bought and sold without significantly distorting the price. There are a number of different reasons as to why firms cross list from the domestic market according to Rosenboom and Van Dijk (2009), which includes market liquidity where cross listing 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.

Liquidity is seen as a major motivator for firms to cross list. This is because before cross listing the firm has to contend with the liquidity in the home market which may not satisfy the firm's financing needs. Mittoo (1992) indicates that managers of overseas companies indeed cite increased liquidity through increase in traded volume as a primary factor in their decision to list in the U.S.; this is no different in the EAC market. With mass cross listing taking place in East Africa cross listing firms will be interested to know whether they will achieve this objective by cross listing.

Shares listed in the NSE may become illiquid after trading for some time in the home market, the firms cross list in other markets in the EAC to try to make their shares more liquid and attract new investors. With liquidity being a major motivator for firms to cross list, a study focusing on the impact of cross listing on share liquidity in the EAC becomes necessary.

## **1.2 Problem Statement**

Of recent, firms in Kenya have been increasingly cross-listing in the other EAC markets where they hope to attract investors from the region and also enjoy other benefits associated with cross-listing. This has led to increased interest in cross border listing within East Africa. When a firm cross-lists its shares, it creates investor interest and this elicits remarked changes in its traded volume, turnover and stock liquidity. Whereas evidence exists on the effect of cross border listing on financial performance and firm value, there is scanty literature on how cross border listing may affect share liquidity of the cross listing firm's shares in the EAC market. This study therefore was done to determine whether cross border listing affects the share liquidity of a cross border listed firm in Kenya.



### **1.3 Objectives of the Study**

The general objective of this study was to determine the impact of cross border listing on share liquidity of firms listed in the NSE that have cross listed in the EAC securities market.

To achieve the above objective the specific objectives were:

- i. Determine change in traded volume of the stock before and after cross listing.
- ii. Determine change in turnover of the stock before and after cross listing.
- iii. Evaluate the impact of cross border listing on share liquidity before and after cross listing.

### **1.4 Research Questions**

- i. Does traded volume of a stock significantly change after cross listing?
- ii. Does turnover of a stock significantly change after cross listing?
- iii. Does cross listing impact share liquidity?

### **1.5 Justification of the Study**

The findings of this study were useful to policy makers, managers and shareholders of firms already cross listed in East Africa and also those that wish to cross list to know whether cross border listing does improve the liquidity of their stock and if such exercise is likely to help the firm achieve its stock liquidity goals.

The study also bridges the knowledge gap on effect of cross border listing on the liquidity of stock in the NSE which was useful to future researchers as it forms part of their empirical literature on cross border listing.

### **1.6 Scope and Limitations of the Study**

This study focused on cross border listing in East Africa where the primary market of the cross listed stock is the NSE. The firms cross listed from the NSE to the EAC will be used as a case study for the region. The study was limited on the impact of cross listing on share liquidity of cross listed stock in the primary market, which in this case is the NSE. Other factors affecting share liquidity of a firm other than share liquidity were a limitation to the study.

## **1.7 Definition of Terms**

**Cross border listing** – refers to the listing of firm's shares in more than one market.

**Share liquidity** – refers to how easily shares of a firm can be bought and sold without significantly distorting the price. It can also refer to how easily shares can be converted to cash.

**Share traded volume** – refers to the number of shares of a firm traded in a given period.

**Demutualization** – refers to the privatization of stock markets so that they are owned by share holders and not members.

**Integration of stock markets** – This is a market, where without restrictions investors in one country can buy and sell equities that are issued in another.

**Time trading** – this is the ability to execute a transaction immediately at the prevailing price.

**Market tightness** – defined as the ability to buy and to sell an asset at about the same price at the same time.

**Market depth** – this is the ability to buy or to sell a certain amount of an asset without influence on the quoted price.

**Market resiliency** – this is the ability to buy or to sell a certain amount of an asset with little influence on the quoted price.

**Turnover** – is defined as the monthly volume divided by the number of outstanding shares in the month in which volume of trade is measured.

**Bid-Ask Spread** - the amount by which the ask price exceeds the bid price of a share.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter the relevant literature on cross border listing which has been growing at a fast rate are reviewed to better understand the research objectives and to establish research gaps. This includes; reasons for cross border listing, cross border listing in Africa, cross border listing in eastern Africa, market integration, cross listing and traded volume, cross listing and share liquidity, difference between traded volume and share liquidity, cross border listing and firm performance, measures of liquidity, relationship between market depth, resilience and tightness with liquidity and theoretical literature.

##### **2.1.1 Cross Listing and Reasons for**

Cross listing as discussed in chapter one is where a firm lists its shares for trading on at least two stock exchanges located in different countries. Firms will cross list for different reasons as shown by available literature. D'Souza et al. (2005) observed that firms will cross list for various reasons such as; to gain liquidity and avoid cross border barriers of investment, to have access to capital from another market and also bond themselves to markets with stronger shareholder protection. Investor protection is poor in many countries as shown by La Porta et al. (1998), which carries significant economic consequences such as low external finance, share prices and under developed financial markets. This motivates firms in markets with poor investor protection to cross list in other markets which bonds them to better investor protection (Stulz, 1999). Reese and Weisbach (2002) note that firms from countries with weak investor protection regimes are more likely to cross-list in the US, while firms that have a large controlling shareholder are less likely to cross-list (Dojige et al., 2006). With Kenya having weak investor protection laws, Kenyan firms will cross list in markets that have better investor protection such as Rwanda which has better regulations in terms of investor protection in the region.

Onyuma et al. (2012) notes that cross listing is also beneficial for the firm and country of secondary listing. In addition to increasing stock market liquidity, cross listing also provides an avenue for portfolio diversification for a wider investor base, improves employment levels through gains from the expansion in operations in the country of secondary listing, enhances both the business reputation of the cross listed firm and other national listed firms, reduces spreads on interest rates and debt securities by increasing the number of investors in the stock market thereby reducing the concentration of investors in the money market, increases the

availability and accuracy of public information and lowers information asymmetries and enhances corporate governance, market transparency and quality.

Adelegan (2009) using event study methodology found that there are positive abnormal returns around the date of the regional cross-listing of stocks. The positive announcement period effect, together with the normal post cross listing performance shows that regional cross listing increases firm value and that a firm benefits from listing outside their home market. This shows that firms in the region will be encouraged to cross list hoping to increase their value. Cross border listing in Africa is also influenced by policy, for instance many South African companies listing on the Namibia Stock Exchange has been motivated by the imposition of capital controls on portfolio flows and by the domestic investment requirements set by the Namibian authorities in an attempt to keep the large surpluses of the country's pension and insurance funds invested in Namibia. By cross listing, South African firms were able to qualify as Namibian investments. Similarly, the cross listing of East African Breweries on the Ugandan and Tanzanian exchanges was linked to ensuring market access for beer trade throughout the EAC. Other policies that can act as incentives for firms to cross list include reductions in the transaction and approval costs of regional cross listing and relaxation of stringent cross listing requirements.

Liquidity is another reason why firms cross list as it is seen as a major motivator for firms to cross list because before cross listing firms have to contend with the liquidity in the primary market which in this case is the NSE which may not satisfy the firms financing needs and thus cross listing to broaden its shareholder base and access to funds from more than one market. Mitoo (1992) surveyed 78 managers from Canadian firms listed on different stock exchanges around the world and reported that increasing liquidity through increase in traded volume is regarded as the most targeted benefit from cross listing.

Studies have proposed other benefits and reasons for cross listing such as access to more developed capital markets such as listing in the U.S. capital markets. Since the U.S. capital markets are deep and liquid, foreign firms can raise funds at a lower cost than at home. Lins et al. (2003) show that firms that list in the U.S. become less credit constrained in that their new investment depends less on their cash flow after the U.S. listing than before. Thus firms that expect to raise funds would be likely to list though this is not the situation in EAC since the NSE is the most liquid market in the region yet all cross listed firms in the EAC have NSE as their primary listing.

Financial performance of a firm is expected to improve after cross listing. Onyuma et al. (2012) show that although profitability and gearing ratios improve in absolute terms, this improvement was not statistically significant. Overall their findings provide some evidence that firms may benefit from cross listing in terms of liquidity and investor confidence.

Cross listing provides a firm with an opportunity to improve its corporate governance according to Michael et al. (2004). Cross listing is a vehicle through which a firm's management can 'bond' themselves to a legal system with more protections against management self-dealing or excessive consumption of private benefits of control, Burns and Bill (2006). Cross listing, helps improve on corporate governance. This is true for firms that originate from relatively less-developed country with weaker institutions. For instance, firms from Africa that cross-list on the American market have to maintain the standards of the American system. This in essence will improve their governance practices. The higher standards lead to more disclosure and better information, which gives the shareholders greater influence and protect minority shareholders more fully thus improving the ability to create value for shareholders (Mugo, 2010).

### **2.1.2 Cross Border Listing in Africa**

Cross border listing has existed in Africa for a while, although this is usually done regionally. Adelegan (2009) observed that cross listing was started by the Johannesburg Securities Exchange (JSE) of South Africa when it cross listed on the Namibia Stock Exchange (NSX) on the first day of trading of the NSX in October 1992. Subsequently, South Africa has cross-listed 28 firms on the NSX. There has also been regional cross-listing between stock markets in Botswana and South Africa since 1997; Malawi and South Africa in 1999; Nigeria and South Africa first in 2001 and later in 2006; Zambia and South Africa in 2003; and Ghana and South Africa in 2004. Triple listing of stocks has also commenced, with the three East African Exchanges of Kenya, Uganda and Tanzania in 2004; where Nation Media Group, KCB Group, East African Breweries Limited, Kenya Airways and Jubilee Holdings, which are primarily listed on the NSE, are also cross-listed on the Uganda Securities Exchange (USE) and Dar es Salaam Securities Exchange (DSE), while Nation Media Group and KCB Group are also cross-listed on the RSE. South Africa has signed a MoU with Botswana, Egypt, Ghana, Kenya, Namibia, Nigeria, and Uganda. Nigeria has signed a MoU with Ghana and WAEMU, while the Nairobi Stock Exchange of Kenya has signed MoUs with Ghana, Nigeria, Tanzania, Uganda, and WAEMU (Onyuma et al. 2012). In Sub Saharan Africa

countries, regional cross-listing is beneficial to the firms and to the countries of both primary listing (home country) and secondary listing (host country). Policy makers of the countries of primary and secondary listings need the right policies to encourage, facilitate and steer regional cross-listing efforts by firms. Through complementary policy based efforts, policy makers can set the stage for the regional cross listing of stocks and harness the numerous benefits that are associated with it (Adelegan, 2009).

Regional cross-listings in Sub-Saharan Africa have been associated with expansion and the setting up of operations in the host countries. In almost all cases, firms are large with a strong base in their home countries, and they first established operations in their host countries before deciding to cross-list. Many cross-listings are undertaken to expand operations in the host countries. For example, East African Breweries, with Kenya as the home country, has a subsidiary Uganda Breweries Ltd in Uganda, its host country of cross-listing. Jubilee Insurance of Kenya has subsidiaries in Uganda and Tanzania; Kenya Airways owns 49 percent of Precision Air of Tanzania; Ecobank Transnational has operations in the Cote D'Ivoire the home country and in Ghana and Nigeria, the host countries; Investec and Ellerrine have operations in South Africa and Botswana; and the 28 firms that are cross-listed in South Africa and Namibia have an operational base in both countries. Cross-listing in sub-Saharan Africa has been generally accompanied by an initial public offering and/or secondary market listing (Onyuma et al. 2012).

### **2.1.3 Cross Border Listing in Eastern Africa**

In the EAC cross listing across national stock exchanges in Kenya, Tanzania, Uganda and Rwanda is seen as a means to regional integration. Integration of the capital markets means that investors will buy and sell securities in any East African stock market without restriction. Participants in capital markets will freely offer their services throughout East Africa and those identical securities will trade at essentially the same price across markets after foreign exchange adjustments. According to Onyuma et al. (2012) it is now easier to cross-list in the East African Bourse due to the following incentives: First there are no requirements of Reporting Accountants Report. Second, only a summarized information memorandum is required. Third incentive is that an abridged financial statement for the last five years is acceptable. Fourth, provision of the latest annual or interim accounts submitted to the home exchange would be accepted as the latest financial statements. Finally, standard initial cross-

listing fee of US\$5,000 against previous US\$21,126 has been set for firms listing their equities across Kenya and Uganda borders.

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 three East African Stock Exchanges, namely Nairobi securities Exchange (NSE), Uganda Securities Exchange (USE) Dar es Salaam Stock Exchange (DSE), and the Rwanda Stock Exchange have established a working relationship among them in the spirit of integrating and developing capital markets in the East African Community (EAC). The exchanges operate under the umbrella of East African Stock Exchanges Association (EASEA) with the objective of integrating trading, clearing and settlement infrastructures within the EAC to facilitate a faster trading system. A key first step is improving interconnectedness of the regional securities exchanges. EASEA is a member of Capital Markets Development Committee (CMDC) of the EAC. Other members of the CMDC include East African Securities Regulatory Association (EASRA) and East African Stock Exchange Brokers Association (EASBA). The three associations have the common objective of integrating the three markets in order to achieve growth of the market with the ultimate aim of economic union in the EAC. The three markets are aiming at achieving this objective in a systematic, coordinated manner that will facilitate the availability of listed securities in the three markets simultaneously. To this end EASEA has determined mass cross listing as the key activity that will achieve this objective (Onyuma et al., 2012).

The East African Member States Securities and Regulatory Authorities (EASRA) comprising capital market authorities of Kenya, Tanzania, and Uganda were established on March 5, 1997 through the signing of an MOU. It was set up with the objective of establishing a framework for mutual cooperation in the area of capital market development, harmonization of securities laws, and promotion of information-sharing and cooperation among members. The geography of cross listing has changed considerably with Kenya Airways (KQ), East Africa Breweries Limited (EABL), Jubilee Insurance Holding (JIH), Equity Bank (EB), Kenya Commercial Bank (KCB), Nation Media Group (NMG), and Centum Investment Company Ltd. (Centum) which are Kenyan firms, listing in Uganda, Tanzania and Rwanda (Onyuma et al., 2012). In 2012 three Kenyan firms, Equity Bank, KenolKobil and Centum Investments have announced their intention to cross list their shares in the Rwanda Stock

Exchange after shareholders agreed to cross listing but only Uchumi Supermarkets has cross listed in the RSE in October 2013.

#### **2.1.4 Market Integration**

Market integration is the process by which segmented markets open up so that participants enjoy equal unimpeded access, such as is the case in East Africa. Integration will provide a larger market from which to tap capital for investments and also importantly enhance the appeal of East African stock markets to foreign investors upon whose capital resources the region relies for development through regionalization. This occurs through removal of domestic and international controls on a country level or as a result of technological advances which eliminate the problem of trading due to geographical factors. The integration of capital markets in East Africa will mean that investors will buy and sell securities in any East African stock market without restriction and that participants in capital markets will freely offer their services throughout East Africa. The introduction of CDS and ATS software in three securities exchanges; NSE, USE and DSE is a step closer to integration of the markets based on integration of trading, clearing and settlement systems in the three markets. Rwanda is also gearing towards an automated trading platform to attract more foreign companies and boost activity on the bourse. The move will phase out the open (manual) trading system, which is seen as unappealing to foreign companies and investors.

According to Mwenda et al. (2008) faced with constraints such as inadequate liquidity, the regulatory framework for public distribution of securities in many African emerging markets has had limited success in facilitating the development of competitive Stock Exchanges. According to the NSE capital markets in EAC face common challenges of low capitalization and liquidity to different degrees. Regionalization of capital markets has the potential to address the thinness and illiquidity of the regional capital markets. It is argued therefore that the introduction of a regional stock exchange in the common market of Eastern and Southern Africa and promotion of multiple listings and cross border trade in securities would facilitate the development of more efficient capital markets in the region. This would help ease the liquidity problems associated with underdeveloped markets such as those in the EAC.

Regional integration has the potential to help countries overcome constraints facing their markets. Integrated capital markets if managed properly will allow savings to be pooled across the region, cost and information sharing among members, diversification of risks, enhanced competition and innovation across financial institutions, wider choices of financial



products and integration into global economy facilitated by increased attractiveness of markets (Irvin, 2005). Regional integration will also lead to developed capital markets which promote growth by mobilizing domestic savings and investments by efficiently allocating mobilized resources to local companies. Also deep and liquid capital markets can lessen vulnerability of an economy to external shocks by reducing currency and duration mismatches in raising funds.

Adelegan (2008) did a study on whether regional cross listing can accelerate stock market development and found that, overall, growth in the regional cross listing of stocks facilitates stock market deepening, and the stock markets of countries with regional cross-listings perform better than those without. The study thus suggests that Sub-Saharan Africa countries can benefit from putting in place the necessary conditions for promoting regional cross-listings and thereby deepening their stock markets. These include sound legal and regulatory frameworks, macroeconomic and political stability, harmonization of listing rules, accounting laws and disclosure requirements across the region, and strong money markets.

The four East African securities exchanges have established the East African Securities Exchanges Association (EASEA), in order to integrate and develop capital markets in East Africa. The EASEA working group decisions on mass cross-listings of stock was announced on August 10, 2005, two months after cross-listing of East African Breweries Limited with primary listing on NSE and secondary listing on USE in Uganda and DSE in Tanzania on June 29, 2005. This led to increase in cross border listing with Nation Media Group, Kenya Airways, Kenya Commercial Bank, Jubilee Holdings, Equity Bank, East African Breweries and most recently Uchumi Supermarkets which are Kenyan firms, listing in Uganda, Tanzania and Rwanda. Umeme Ltd which has a primary listing in the USE cross listed in the NSE in 2013 which was a first for the security exchange. The four stock markets need to be demutualised first for easier integration and now that the NSE is undergoing demutualization which is expected to be completed by the second quarter of 2013 (Onyuma et al., 2012). This means doing away with domestic or regional monopolistic and oligopolistic practices which create barriers to entry and higher than warranted costs. The currently cross listed companies have to comply with all the four securities markets regulations. They are thus likely to face regulatory uncertainties, complexities, and increased costs both directly and in having to comply with multiple regulatory regimes and indirectly in having to pay for the many regulators. Harmonizing legislation will also have to be considered, for example, differences

in bankruptcy regimes, restrictions on ownership by non-nationals, the imposition of national rules to protect national industries, requirements to establish local companies, restrictions on issuers, intermediaries and investors in providing cross-border services (Mwanza, 2006).

The EAC common market integration process has made commendable progress as noted in the at the 20<sup>th</sup> EASEA meeting held in July 2012. During the meeting it was noted that interconnectedness and collaboration of the regional stock exchanges would increase efficiency and liquidity within the region. To further integrate the EAC markets EASEA members proposed the establishment of a policy requiring IPOs available to investors in the region should be denominated in the local currency of the applicant so as to avoid exchange rate risks and transfer chargers levied by banks. Standardization of the treatment of East Africans has been proposed to remove restrictions on the flow of funds across the region. The EASEA has also proposed the creation of a single license that enables an East African broker to operate in any EAC market fairly. Further, a harmonized, continuous professional development programme will ensure uniform standards of market participants across the region.

Following resolutions during the 19th EASEA meeting held in Kigali, it was agreed that the Broker Back Office (BBO) system implemented in Kenya be adopted as the Regional standard. Adoption of a standard BBO system by all East African markets will automate the entire process of transacting in securities with minimal manual intervention and be interfaced with the trading platform and settlement platforms regionally. This system will reduce the risk of trading in securities listed on the regional Exchanges, boost investor confidence and facilitate greater access by enabling internet trading. The Regional Broker Back Office will improve the integrity of the Exchanges trading systems and facilitate greater access to our securities markets (EASEA, 2012). A proposal to have a Regional Inter-depository Transfer Mechanism was also discussed during the 20<sup>th</sup> EASEA meeting. An efficient Regional Inter-depository Transfer Mechanism will offer a platform which supports secure and efficient delivery and settlement of securities across the regional markets. This will ease the challenges faced by the investor when transacting in cross listed securities in a market other than that in which their securities are listed.

### **2.1.5 Cross Listing and Traded Volume**

Trading volume is regarded as a measure of liquidity of a given stock by measuring changes in trading volume of the stock. Although volume is a very simple measurement, the average

person or novice investor may not understand how useful this information can be. Trading volume is a powerful market tool that is used for technical analysis and movements in volume may indicate investor sentiment, important events taking place in the market such as cross border listing of a stock or institutional trading of the security.

Increasing trading volume to improve share liquidity is considered one of the main motivations for firms to cross list. The theory suggests that before cross listing, the firm's ability to raise funds is limited by the liquidity available in its primary market which may not satisfy the firm's need for external financing. Cross border listing reduces segmentation, that is, ownership restriction and enables the firm to improve its trading volume and thus liquidity of the stock by enlarging its shareholder base and accordingly raising funds on more than one market, particularly if the firm cross lists on a market with higher liquidity than its home market (Abed et al., 2011).

Karolyi (1998) found that there is overwhelming evidence that the total volume of trading increases following cross listing. Bancel and Mitoo (2001) also report that, on the basis of survey done with Canadian and European firms that cross listing increases the total trading volume of the share of the firm. Based on existing literature the increase of trading volume after cross listing also occurs in the primary market, which in this study is the NSE. Although most studies show that increase in trading volume after cross listing in the secondary market is accompanied by increase in the primary market (Forester et al., 1993), there also exists contradictory evidence as shown by Levine et.al. (2003).

The change in trading volume after cross listing can be attributed to several factors. Doidge (2004) shows that the impact in trading volume is a function of the changes in ownership that occur after cross listing, while Halling et al. (2004) shows that the ratio between home and trading is a function of the characteristics of the cross listed firm such as industry affiliation, foreign sales and the characteristics of the primary and secondary markets such as differences in investor protection and information disclosure. Differences in trading hours of securities markets can also lead to changes in traded volume of cross listed stock.

#### **2.1.6 Cross Listing and Share Liquidity**

Liquidity is the lifeblood of financial markets. Its adequate provision is critical for the smooth operation of an economy. Its sudden erosion in even a single market segment or in an individual instrument can stimulate disruptions that are transmitted through increasingly interdependent and interconnected financial markets worldwide (Rico, 2004). If there is no

liquidity at all in the market, no trading can take place. In a liquid market there exist at least one bid and one ask quote that make a trade possible and it is also possible to trade a certain amount of shares with little impact on the quoted price. Liquidity is important to stock exchanges and investors because it enables the following; time trading which is the ability to execute a transaction immediately at the prevailing price, tightness defined as the ability to buy and to sell an asset at about the same price at the same time, depth which is the ability to buy or to sell a certain amount of an asset without influence on the quoted price and lastly, resiliency which is the ability to buy or to sell a certain amount of an asset with little influence on the quoted price.

Companies value share liquidity for a number of reasons as observed by William (2009). First, liquid stock can be used as currency for acquisitions. This allows a public company to pursue an acquisition even if it lacks sufficient cash or borrowing capacity. Second, a company can use liquid stock as a component of employee compensation. Liquid stock is attractive to employees because it can be easily valued and converted into cash, and it provides tax benefits and upside potential. These considerations aid in employee recruitment and retention and better align the interests of employees and shareholders. Third, fluctuations in the price of a company stock in a liquid market aids management because it provides immediate feedback as to the market consensus on the company's strategy and performance.

When shares of a firm become illiquid either due to low trading volume or a wide spread the firm will ideally cross list to increase the share liquidity of its stock. Karolyi (1998) looked at why companies list abroad and reported that liquidity of shares improves overall but depends on the increase in total trading volume, the listing location and the scope of foreign ownership restrictions in the primary market. Important liquidity effects are observed with cross listing. Typically stocks experience an increase in total trading volume and a decrease in home market spreads due to in large part to the competition from the new market captures. The extend of liquidity enhancement, however depends on the proportion of total trading volume the new market captures and the trading restrictions imposed on foreigners in those stocks prior to cross listing, (Karolyi, 1998).

Amihud and Mendelson (1989) indicate that investors require higher returns to hold stocks with lower liquidity to compensate them for higher transaction costs. This will negatively impact on the stock making it expensive and thus undesirable to investors. By cross listing the firm should be able to increase the liquidity of its stock which in turn brings down the

price and makes the stock more attractive to investors in both the primary market and secondary markets. Increased liquidity, other factors held constant, should translate into a lower cost of equity capital because it reduces the costs of trading for investors and therefore reduces the required illiquidity premium (Brennan et al., 1998 and Jacoby et al, 2000).

There are other factors that affect share liquidity other than cross border listing as noted by Shuenn (2007), who looked at factors affecting stock liquidity and identified firm size, compression of ownership structure, level of information asymmetry, utilization rate of margin trading, absorbed stocks of investors, and the entire market's liquidity as the factors affecting liquidity. He reported that, the firm size is positively related to liquidity, the more scattered ownership structure is, the higher the liquidity will be, the more critical information asymmetry is, the lower the stock liquidity will be, the higher margin trading utilization is, the higher the stock liquidity will be, the liquidity of an individual stock is positively related to the liquidity of the entire market and the more investor's perceptions are absorbed, the higher the stock liquidity will be.

#### **2.1.6.1 Difference between Traded Volume and Share Liquidity**

As discussed above trading volume is regarded as a measure of liquidity of a given stock by measuring changes in trading volume of the stock. Volume is a number that tells you the number of contracts traded that day, just as the volume on a stock exchange tell you how many shares of stock have traded. On the other hand, share liquidity refers to how easily shares of a firm can be bought and sold without significantly distorting the price. Liquidity is characterized by a high level of trading activity. Large companies with hundreds of millions of shares in issue and high number of shares being traded each day have good liquidity, while small companies with few shares in issues and low trading volumes have poor liquidity.

Trading activity relates to the liquidity of a security; therefore, when average daily trading volume is high, the stock can be easily traded and has high liquidity. Thus volume is a measure of liquidity in a stock. The higher the volume, the more liquidity is present and the more competitive the stock will be.

Traded volume is different from share liquidity in that, traded volume is used as a measure of liquidity where by high daily trading volumes indicate high share liquidity and low traded volumes indicate low liquidity of a stock.

### **2.1.7 Cross Border Listing and Firm Performance**

Cross border listing will have an impact on a firm's value and financial performance as evidenced by several studies. Mugo (2010) did a study on effects of cross border listing on a firm's financial performance of listed Kenyan based companies on the East African bourse. He noted that there is scanty empirical evidence on the effects of cross border listing on a firm's financial performance since cross listing is an emerging trend in developing economies. The study covered the pre and post-listing financial performance of the firms two years before and after cross listing. Karl Pearson's correlation co-efficient and t test (one and two tailed) were used to test for relationships of the financial ratios computed. Most of the results were not statistically significant. Liquidity improved for most of the firms apart from the results of one. Profitability of most firms also increased after they cross-listed. When firms raise capital through cross listing, their Earnings per Share reduces due to the dilution effect. From data analyzed, it was found that all non-cross listed firms in similar sub-sectors were highly interlinked since all had a correlation greater than 0.6. In all the cross-listed firms, the majority shareholders owned more than 25% but less than 49% of shares thus implying being associates. When firms cross-list, their P/E ratio increase; this could translate to goodwill that investors place on the firm thus having patience to wait longer for their returns.

Onyuma et al. (2012) also did a study to examine whether cross-border listing affects firm's financial performance in Eastern Africa. Financial data spanning three years before and after cross-listing was collected from financial statements of three Kenyan firms which have cross-listed their shares in EAC exchanges between 2001 and 2011. Using financial ratio analysis, liquidity, profitability, gearing and investor ratios were computed three years before and after cross-listing. The results show a low positive financial performance in terms of liquidity upon cross-listing. Market confidence as measured by P/E ratio also improved. This implied that regional cross-listing may increase firm's investor confidence. Although profitability and gearing ratios improved in absolute terms post cross-listing, this improvement was not statistically significant. In fact, the investor ratios like dividend yield reduced, but such reduction was not statistically significant. Overall, the findings provided some evidence that firms may benefit from cross listing in terms of liquidity and confidence. Their analysis however uncovered no clear evidence of material value creation to shareholders of cross-listed firms, except improved market confidence.

Adelegan (2009) did a study on the impact of the regional cross-listing of stocks on firm value in sub-Saharan Africa where the sample consists of Sub-Saharan African (SSA) firms that have cross-listed during the period 1992–2008. Using event study methodology, the study found positive abnormal returns around the date of the regional cross-listing of stocks. The positive announcement period effect, together with the normal post cross-listing performance, shows that regional cross-listing increases firm value. Overall, this provides evidence that firms benefit from listing outside their home market and need to be taken into consideration by SSA country authorities as they seek a regional approach to stock market development. Similarly Cetorelli et al. (2010) investigated the valuation impact of a firm's decision to cross list on a more or less prestigious stock exchange relative to its own domestic market. They used network analysis to derive broad market based measures of prestige for forty five country regional stock destinations between 1990 and 2006. They found that firms cross listing in a more prestigious market enjoy significant valuation gains over the five year period following the listing. They also reported a reverse effect for firms cross listing in less prestigious markets. These firms experience a significant decline in valuation over the five years following the listing. They conclude that the reputation of the cross border listing is therefore a useful signal to a firm's value going forward. Their findings are also consistent with the view that cross listing in a prestigious market enhances a firm's visibility, strengthens corporate governance, and lowers informational frictions and capital costs.

### **2.1.8 Measures of Liquidity**

Cross listing provides an expanded trading base for a firm. The improved trading base results in greater volume and therefore improved liquidity. Consequently, many previous empirical papers in cross listing and liquidity literature examine volume of trade before and after a firm cross lists. The evidence shows that there is an increase in trading volume, for example, Karolyi (1998) found that there is overwhelming evidence that the total volume of trading increases following cross listing as does Bancel and Mitoo (2002).

Dennis and Strickland (2002) used turnover as a measure of liquidity as used by Lakonishok and Lev (1987). Turnover is defined as the monthly volume divided by the number of outstanding shares in the month in which volume of trade is measured. Turnover standardizes volume into a statistic that is consistent for large and small firms and it controls for the change in the number of publicly available shares around the day of cross listing. Turnover is a good proxy for liquidity since high turnover increases competition between market makers and also

lowers the fixed, inventory and adverse selection costs of the market maker (Easley et al., (1996) and Hu (1997).

### **2.1.9 Relationship between Market Depth, Resilience and Tightness with Liquidity**

According to Rose (2003), Kyle (1985) describes market liquidity as a slippery and elusive concept especially because it encompasses a number of transactional properties including tightness, depth and resiliency. For example, liquidity is defined narrowly as the ability to buy and sell a particular security with minimal market impact (Glen 1994). In this respect, Amihud et.al. (1990), observed that illiquidity reflects on the difficulties of converting cash into assets and assets into cash, or the cost of trading assets in the market. Liquidity is also defined broadly as the willingness of stock market participants to engage in trades. In analyzing transactional properties, Kyle (1985) defines tightness; the cost of turning around position over a short period of time as a measure of the ability to transact quickly. Tightness is a market's ability to match supply and demand at low cost (measured by bid-ask spreads), while market depth; the size of an order flow innovation required to change prices by a given amount, is the ability to transact at the current market prices or the sensitivity of prices to order flow. It is observed that market depth is inversely related to the amount of private information not yet incorporated in stock prices, such that the higher the information asymmetry, the lower the market depth. Resiliency or elasticity measures the speed with which prices recover from a random uninformative shock. Therefore, it is directly related to the information capital of investors in the market; the more informed the investors, the more resilient is the market.

There are a number of concepts for evaluating market liquidity, and the indicators corresponding to them are accordingly diverse. The four indicators are: turnover and the turnover ratio, which indicate the trading volume; second, the bid-ask spread, which indicates the trading cost i.e. tightness; third, the daily price range to turnover ratio, which approximates market resiliency; and fourth, information on the trading board, which indicates market depth, (Kenji et.al. 2013).



## **2.2 Theoretical Framework**

### **2.2.1 Market segmentation theory**

Stapleton and Subrahmanyam (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) and Stulz (1981) show 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 Janakiraman's (1986) model that incorporates legal foreign ownership restrictions also predicts a risk premium over the "no-constraints equilibrium price" for restricted (domestic) investors and a discount for unrestricted (foreign) investors. Extending the work of Stapleton and Subrahmanyam (1977), Alexander et al. (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, Olga (2013).

### **2.2.2 Liquidity theory**

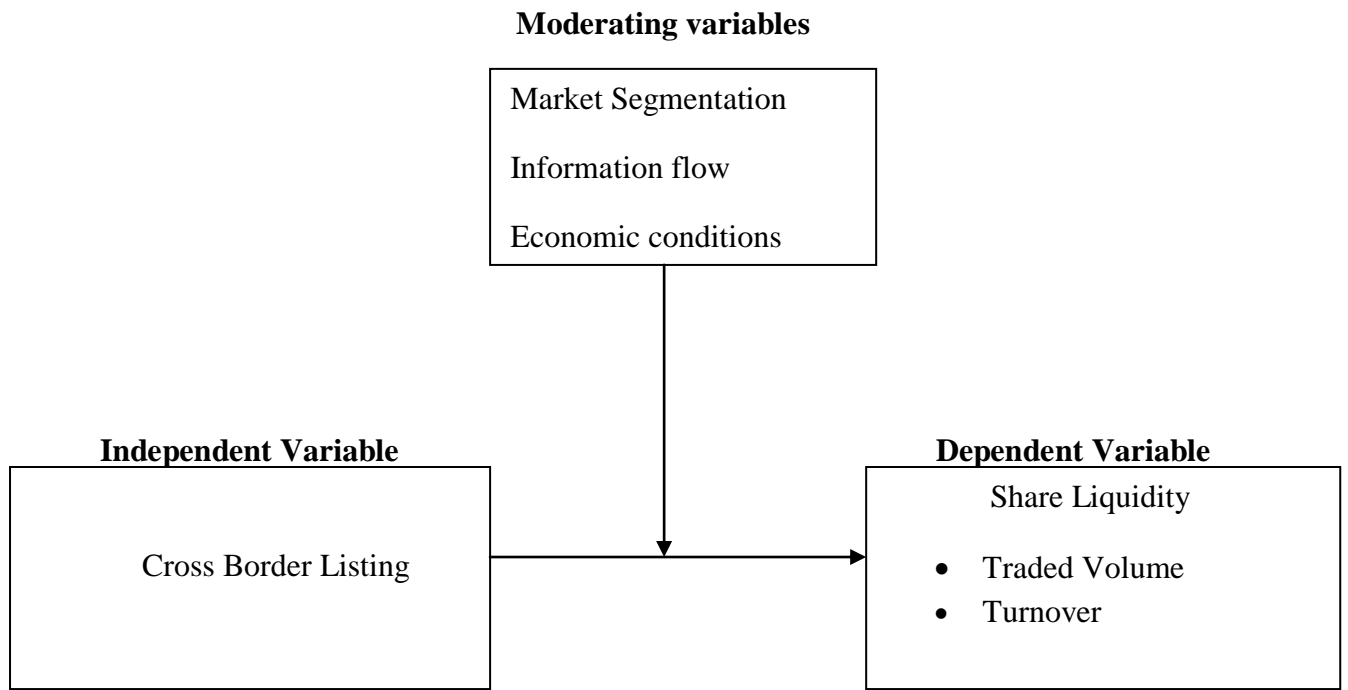
Poor stock market liquidity is one of the deficiencies of a market segmented from global financial markets that could be mitigated by cross-listing. Improved stock liquidity is often cited by corporate managers as one of the main motives to cross-list (Houston and Jones, 2002; Bancel and Mittoo, 2001, 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, Olga (2013).

Several studies have been carried out on cross listing in East Africa. Mugo (2010) carried out a study on the impact of cross listing on financial performance, while Onyuma et al., (2012) studied whether cross border listing improves firm financial performance in Eastern Africa. Kuria (2007) determined the short and long term effects of cross border listing announcements on companies listed in the NSE, and their post listing performance. However there is little evidence of studies carried out on share liquidity of cross listed firms in the NSE sufficiently. This is the research gap that this study aimed to fill.

### **2.3 Conceptual Framework**

Before cross listing, firms listed in a stock exchange face low liquidity of their stock which is evidenced by low traded volumes, low market depth, resilience and tightness. When only a few numbers of shares can be traded in a market it results, in low liquidity of the shares because an investor cannot easily convert his or her shares to cash easily. Likewise if the market is characterized by low depth, resilience and tightness it results in low liquidity since an investor will lose value on his or her shares if he or she decides to trade them because of the high bid-ask spread. The conceptual framework (Figure 1) shows the relationship between share liquidity and cross listing, whereby share liquidity is dependent on cross listing. This relationship is moderated by other factors that may affect share liquidity other than cross listing, which include; market segmentation, information flow and economic conditions.



**Figure 1: Conceptual Framework**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

In this chapter, research design, population of the study, sampling procedure, data type and collection, data analysis and presentation are discussed.

#### **3.1 Research Design**

Event study methodology was utilized in this study. This method was chosen because it is a technique of empirical finance research that enables a researcher to assess the impact of a particular event taking place in a firm.

#### **3.2 Population of the Study**

The target population consisted of all stocks listed in the NSE that have been cross listed to other EAC stock exchanges. Overall nine (9) NSE listed firms have cross-listed to other EAC exchanges with Umeme listed in USE having cross listed in NSE in 2013.

#### **3.3 Sampling Procedure**

This study focused on stocks cross listed in the EAC markets from the NSE in the last five (5) years where data on traded volume was available for a year before and a year after cross listing. Due to the small size of cross listed firms in the EAC a census study was carried out covering all companies that have cross listed in the last five years. Four companies were studied and they included, Kenya Commercial Bank, Equity Bank, Nation Media Group and Centum Investments. Data for Jubilee Holdings could not be obtained for analysis. These four firms were selected because those firms which cross listed between 2003 and 2008 may have had their stock performance affected by the market bull-run and the effect of the post-election violence. Even though Jubilee holdings cross listing fell on the timeline under consideration it was not included since its data was unavailable.

#### **3.4 Data Type and Collection**

Time series secondary data was used in the study. Secondary data was used because the study depends on historical data which cannot be collected as primary data. The data was collected from the NSE on shares traded and stock prices of the cross listed stocks to be used in the analysis. A data collection sheet (Appendix II) was used to show particulars of data relevant to the study and used to collect the data.

### 3.5 Data Analysis and Presentation

Traded volume and turnover were used as measures of liquidity in this study. The volume related liquidity measures can be calculated as a certain volume, or quantity of shares per time unit. Usually volume related liquidity measures are used to capture depth dimension of liquidity, but there is also a relation to the time dimension since higher volume in the market leads to a shorter time needed for trading a predefined amount of shares, (Rico, 2004).

Trading volume per time interval ( $Q_t$ ) is incorporated in many liquidity studies such as Foerster and Karolyi (1998) and Dennis and Strickland (2002). Trading volume for time  $t - 1$  until time  $t$  was calculated as follows;

$$Q_t = \sum_{i=1}^{N_t} q_i \dots\dots\dots 1$$

Where;  $N_t$  – denotes the number of trades between  $t - 1$  and  $t$

$q_i$  - Is the outstanding number of shares of trade.

Like the trading volume, turnover ( $V_t$ ) had to be calculated for a specific time interval, this is calculated as follows;

$$V_t = \sum_{i=1}^{N_t} p_i \cdot q_i \dots\dots\dots 2$$

Where;  $P_i$  – denotes the price of trade.

$N_t$ – is the number of trades between  $t - 1$  and  $t$

$q_i$ – is the outstanding number of shares of trade.

Trading volume and turnover only need trades as data input which makes them easy to calculate. The turnover per time unit has the advantage that it makes different shares comparable to each other. It is not biased by the absolute share price. After calculating the traded volume and turnover for each month for a period of twelve months prior to cross listing and twelve months post cross listing as shown above, mean for traded volume and turnover were calculated following Dennis and Strickland (2002). These were tested for significance using a paired  $t$  – test at five percent level.

There are other liquidity measures such as that proposed by Bekaert et al., (2005). This measure replaces the return observations that are equal to zero by a transformed measure that aims capturing at true price impact. Daily data of returns is used. This liquidity measure will not be used in this study since it is used to evaluate the impact of the cross listing on the development of the home market. After the analysis the data will be presented in tabular form.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSIONS**

#### **4.0 Introduction**

In this chapter the data was analysed and the results discussed. This included; a brief description of the companies under consideration, traded volume before and after cross listing for each company, turnover before and after cross listing for each company, impact on share liquidity and discussions.

#### **4.1 Description of Cross-listed Firms under Analysis**

The following four firms were all cross listed after 2008 and have data available one year before cross listing and one year after cross listing in EAC. They therefore form the cross-listed firms under consideration and results presented below stem from analysis of data for, Kenya Commercial Bank, Equity Bank, Nation Media Group and Centum Investments.

##### **4.1.1 Equity Bank**

Equity Bank Limited is incorporated, registered under the Kenyan Companies Act Cap 486 and domiciled in Kenya. The Bank is licensed under the Kenya Banking Act (Chapter 488), and continues to offer retail banking, microfinance and related services. The Bank has subsidiaries in Kenya, Uganda, South Sudan, Rwanda and Tanzania. Its shares are listed on the Nairobi Securities Exchange and Uganda Securities Exchange.

Equity Bank was founded as Equity Building Society (EBS) in October 1984 and was originally a provider of mortgage financing for the majority of customers who fell into the low income population. By 2012, Equity Bank had more than 8 million customers making it the largest bank in terms of customer base in Africa and having nearly half of bank accounts in Kenya.

##### **4.1.2 Nation Media Group**

The Nation Media Group (NMG) founded by His Highness the Aga Khan in 1959 has become the largest independent media house in East and Central Africa. It has been quoted on the Nairobi Stock Exchange since the early 1970s. As the leading multi-media house in the East African region, it has print as well as electronic media and the Internet which attracts a regular readership quite unparalleled in the region.

On the financial front, the Group's performance over the years has been outstanding even in the leaner economic periods in the country and shows continuous growth and profits for the company as well as the shareholders.

#### **4.1.3 Centum Investment**

Centum is a leading East African investment company that is listed on the Nairobi Securities Exchange and cross-listed on the Uganda Securities Exchange. Centum is an investment channel providing investors with access to a portfolio of inaccessible, quality and diversified investments. In February 2011, Centum successfully cross listed on the USE and 9 million of the 605 million shares are now owned by Ugandan institutional and retail investors. Cross listing on the Rwanda and Dar-es-Salaam Stock Exchanges has delayed due to the capital markets been subdued and challenges of transferring shares to the markets that Centum has secondary listings to facilitate trading. This is a further step towards positioning Centum as one of the most successful investment channels in Africa.

#### **4.1.4 Kenya Commercial Bank**

Headquartered in Nairobi, Kenya Commercial Bank (KCB) Bank Group is one of East Africa's largest banking and financial services organizations and one of the industry's most valuable brands. It has the largest Asset Base in East Africa of KSh322 billion and capital base KSh41 billion. The Bank has a regional network that covers 5 countries i.e. Kenya, Uganda, Tanzania, Rwanda, South Sudan and Burundi. It also has 222 outlets, 2,396 Agents, a regional network of ATMs of 403 units while partnership with PesaPoint and Kenswitch provides access to 519 ATMs.

With listings on the Nairobi and Dar-Es-Salaam stock exchange and Uganda Securities Exchange and Rwanda over the counter market, shares in KCB are held by over 168,008 shareholders.



## 4.2 Traded Volume Before and After Cross Listing

### 4.2.1 Equity Bank

After cross listing the number of deals of Equity shares increased from a mean of 2,785 in 2008 to a mean of 3,584 in 2009, representing a percentage change of 0.04%. This showed that Equity shares were dealt on more after cross listing. The increase in number of deals is however not statistically significant since the p-value of 0.345 is greater than the level of significance 0.05, after conducting a paired t-test. On the other hand the volume traded increased from a mean of 9.6 million shares to a mean of 41.1 million shares one year after cross listing, representing a percentage change of 351%. The increase is statistically significant as shown by the p-value of 0.0002 which is less than the level of significance level of 0.05.

**Table 1: Equity Bank**

	<b>Mean 1</b>	<b>Mean 2</b>	<b>T Stat</b>	<b>Df</b>	<b>P-value</b>
DEALS	2,785	3,584	0.987	11	0.345
VOLUME	9,659,922	41,136,901	5.447	11	0.000
MAX PRICE	198	18	5.883	11	0.000
MIN PRICE	136	14	4.509	11	0.001
AVG PRICE	170	17	5.395	11	0.000

Mean 1– Mean for the first 12 months before cross listing (June 2008- May 2009)

Mean 2 – Mean for the first 12 months after cross listing (June 2009- May 2010)

**Source;** *Data Analysis 2013*

### 4.2.2 Nation Media Group

After cross listing, the number of deals for Nation Media Group (NMG) increased marginally from that of year prior to cross listing. The mean of deals increased from 275 to 289, representing a percentage change of 0.38%. This increase is however not statistically significant as evidenced by the p-value of 0.68254 being greater than 0.05

Volume traded also increased as shown by the mean of 477,550 shares for the year before cross listing and mean of 770,652 for the year after cross listing, representing a percentage change of 61.4%. This increase however is not statistically significant as evidenced by the p value of 0.236942 being greater than 0.05. This means that although the liquidity of MNG shares increased as measured based on traded volume after cross listing, the increase was too small to be statistically significant.

**Table 2: Nation Media Group**

	Mean 1	Mean 2	T Stat	Df	P-value
DEALS	275	289	0.420	11	0.683
VOLUME	477,550	770,652	1.251	11	0.237
MAX PRICE	143	173	4.576	11	0.001
MIN PRICE	121	148	4.555	11	0.001
AVG PRICE	135	165	4.609	11	0.001

Mean 1– Mean for the first 12 months before cross listing (Oct 2009 – Sept 2010)

Mean 2 – Mean for the first 12 months after cross listing (Oct 2010 – Sept 2011)

**Source;** *Data Analysis 2013*

#### 4.2.3 Centum Investments

In the case of Centum as showed in Table 3, the number of deals in the year after cross listing increased as compared to the deals year before cross listing as shown by its mean changing from 498 to 1091, representing a percentage change of 118.8%. The increase in number of deals of Centum shares is statistically significant since the p-value of 0.000 is less than the level of significance 0.05. Traded volume increased as shown by the increase in mean from 1.76 million shares to over 4.47 million shares year after cross listing representing a percentage change of 150%. The increase in volume traded is statistically significant as evidenced by the p- value of 0.000469179 being less than 0.05.

**Table 3: Centum Investment**

	Mean 1	Mean 2	T Stat	Df	P-value
DEALS	499	1,091	8.667	11	0.000
VOLUME	1,757,405	4,469,058	4.903	11	0.000
MAX PRICE	14	22	7.148	11	0.000
MIN PRICE	10	18	7.563	11	0.000
AVG PRICE	12	20	7.625	11	0.000

Mean 1– Mean for the first 12 months before cross listing (Feb 2009 – Jan 2010)

Mean 2 – Mean for the first 12 months after cross listing (Feb 2010 – Jan 2011)

**Source;** *Data Analysis 2013*

#### 4.2.4 Kenya Commercial Bank

According to Table 4 below, it is evident that the deals transacted after cross listing declined as compared to the year before cross listing as the mean declines from 4812 to 2506 deals representing a percentage change of -47.9%. The decrease in number of deals is statistically significant since the p-value of 0.004 is less than the level of significance 0.05. Volume traded also declined from a mean of 24.6 million shares to 16.6 million shares after cross listing, representing a percentage change of -32%. The decrease in traded volume is not statistically significant since the p value of 0.286324 is greater than the 0.05.

**Table 4: Kenya Commercial Bank**

	Mean 1	Mean 2	T Stat	Df	P-value
<b>DEALS</b>	4812	2506	3.586	11	0.004
<b>VOLUME</b>	24,626,423	16,576,762	1.121	11	0.286
<b>MAX PRICE</b>	26	23	2.252	11	0.046
<b>MIN PRICE</b>	15	18	1.420	11	0.183
<b>AVG PRICE</b>	22	21	1.309	11	0.217

Mean 1– Mean for the first 12 months before cross listing (June 2008 – May 2009)

Mean 2 – Mean for the first 12 months after cross listing (June 2009 – May 2010)

**Source;** *Data Analysis 2013*

#### 4.2.5 Overall Impact of Cross Listing on Traded Volume

From table below, the number of deals for the four firms in the study increased from a mean of 2785 year before cross listing to a mean of 3584 year after cross listing, representing a percentage change of 28.7%. The increase in number of deals is not statistically significant since the p-value of 0.773134 is greater than the level of significance 0.05.

Traded volume of the four firms in the study increased from a mean of 9 million shares year before cross listing to a mean of 16 million shares year after cross listing, representing a percentage change of 77.8%. This increase in shares traded was statistically significant as shown by the p-value of 0.0049 which is less than the level of significance 0.05.

**Table 5: Overall Traded Volume**

	Mean 1	Mean 2	T Stat	Df	P-value
<b>DEALS</b>	2,785	3,584	0.315386	3	0.773134
<b>VOLUME</b>	9,130,325	15,738,343	0.76801	3	0.004984
<b>MAX PRICE</b>	95	59	0.748493	3	0.005085
<b>MIN PRICE</b>	70	50	0.61742	3	0.580656
<b>AVG PRICE</b>	85	56	0.697477	3	0.535699

Mean 1– Mean for the first 12 months before cross listing

Mean 2 – Mean for the first 12 months after cross listing

**Source;** *Data Analysis*

### 4.3 Turnover Before and After Cross Listing

#### 4.3.1 Equity Bank

Turnover for Equity Bank declined from a mean of 895 million shares in the year before cross listing to a mean of 692 million shares a year after cross listing, representing a percentage change of -22.7%. The decline in turnover is observed because even though volume traded increased after cross listing, average price declined from a mean of sh. 170 to a mean of sh. 17 after cross listing, representing a percentage change of -90.3%. The decline in turnover however is not statistically significant since the p-value of 0.397 is greater than the level of significance of 0.05.

**Table 6: Equity Bank Turnover**

	Mean 1	Mean 2	T Stat	Df	P-value
<b>TURNOVER</b>	894,567,756	692,158,202	0.881	11	0.397
<b>MAX PRICE</b>	198	18	5.883	11	0.000
<b>MIN PRICE</b>	136	14	4.509	11	0.001
<b>AVG PRICE</b>	170	17	5.395	11	0.000

Mean 1– Mean for the first 12 months before cross listing (June 2008- May 2009)

Mean 2 – Mean for the first 12 months after cross listing (June 2009- May 2010)

**Source;** *Data Analysis 2013*

#### 4.3.2 Nation Media Group

Turnover for NMG increased from a mean of 6.6 million year before cross listing to 1.2 billion for year after cross listing, representing a percentage change of 81.8%. The increase in mean is not statistically significant as evidenced by the p-value of 0.125537 being greater than 0.05.

**Table 7: Nation Media Group**

	<b>Mean 1</b>	<b>Mean 2</b>	<b>T Stat</b>	<b>Df</b>	<b>P-value</b>
TURNOVER	66,322,959	1,236,542,237	1.658	11	0.126
MAX PRICE	143	173	4.576	11	0.001
MIN PRICE	121	148	4.555	11	0.001
AVG PRICE	135	165	4.609	11	0.001

Mean 1– Mean for the first 12 months before cross listing (Oct 2009 – Sept 2010)

Mean 2 – Mean for the first 12 months after cross listing (Oct 2010 – Sept 2011)

**Source;** *Data Analysis 2013*

#### **4.3.3 Centum Investments**

Turnover for Centum Investment increased after cross listing from a mean of 21.3 million year before gross listing to a mean of 94.7 million year after cross listing, representing a percentage change of 345.4%. This increase is statistically significant since the p- value of 0.000086 is less than 0.05. Centum shares liquidity increased significantly based on turnover which increased significantly after cross listing.

**Table 8: Centum Investment**

	<b>Mean 1</b>	<b>Mean 2</b>	<b>T Stat</b>	<b>Df</b>	<b>P-value</b>
TURNOVER	21,294,020	94,701,747	6.026	11	0.000
MAX PRICE	14	22	7.148	11	0.000
MIN PRICE	10	18	7.563	11	0.000
AVG PRICE	12	20	7.625	11	0.000

Mean 1– Mean for the first 12 months before cross listing (Feb 2009 – Jan 2010)

Mean 2 – Mean for the first 12 months after cross listing (Feb 2010 – Jan 2011)

**Source;** *Data Analysis 2013*

#### **4.3.4 Kenya Commercial Bank**

Turnover for KCB declined from 494.5 million to 356.8 million year after cross listing, representing a percentage change of -27.9%. This decline in turnover is also not statistically significant as evidenced by the p value of 0.288123 being greater than 0.05.

**Table 9: Kenya Commercial Bank**

	Mean 1	Mean 2	T Stat	Df	P-value
<b>TURNOVER</b>	494,506,667	356,769,698	1.116	11	0.288
<b>MAX PRICE</b>	26	23	2.252	11	0.046
<b>MIN PRICE</b>	15	18	1.420	11	0.183
<b>AVG PRICE</b>	22	21	1.309	11	0.217

Mean 1– Mean for the first 12 months before cross listing (June 2008 – May 2009)

Mean 2 – Mean for the first 12 months after cross listing (June 2009 – May 2010)

**Source;** *Data Analysis 2013*

#### 4.3.5 Overall Turnover

Turnover for the four firms on the other had declined from a mean of 369 million year before cross listing to a mean of 317 million year after cross listing, representing a percentage change of -14.1%. Since traded volume which is used to compute turnover increased after cross listing, the decline in turnover is explained by the decrease in average price mean from sh. 85 year before cross listing to a mean of sh. 56 year after cross listing, representing a percentage change of -34.1%. This decrease in average price may have been caused by other factors in the market. However the decrease in turnover after cross listing is not statistically significant since the p-value is greater the level of significance 0.05.

**Table 10: Overall Turnover**

	Mean 1	Mean 2	T Stat	Df	P-value
<b>DEALS</b>	2,785	3,584	0.315386	3	0.773134
<b>TURNOVER</b>	369,172,851	316,657,412	0.251628	3	0.503256
<b>MAX PRICE</b>	95	59	0.748493	3	0.005085
<b>MIN PRICE</b>	70	50	0.61742	3	0.580656
<b>AVG PRICE</b>	85	56	0.697477	3	0.535699

Mean 1– Mean for the first 12 months before cross listing

Mean 2 – Mean for the first 12 months after cross listing

**Source;** *Data Analysis*

#### 4.4 Share Liquidity Before and After Cross Listing

##### 4.4.1 Equity Bank

After cross listing, share liquidity for Equity Bank increased by 351% as shown in Table 4.2.1. The increase is statistically significant as shown by the p-value of 0.0002 which is less

than the level of significance level of 0.05. This implies that cross listing of Equity shares had a positive impact on their liquidity when measured based on traded volume.

On the other hand when measured by turnover, liquidity for Equity Bank decreased by -22.7% as shown in Table 4.3.1. The decline is observed because even though volume traded increased after cross listing average price declined from a mean of sh. 170 to a mean of sh. 17 after cross listing, representing a percentage change of -90.3%. The decline in liquidity however is not statistically significant since the p-value of 0.397 is greater than the level of significance of 0.05. Thus the shares liquidity declined as measured using turnover.

#### **4.4.2 Nation Media Group**

When measured by traded volume liquidity increased by 61.4% after cross listing as shown in Table 4.2.2. This increase however is not statistically significant as evidenced by the p value of 0.236942 being greater than 0.05. This means that although the liquidity of MNG shares increased as measured based on traded volume after cross listing, the increase was too small to be statistically significant. Therefore cross listing of NMG shares had a positive impact on their liquidity based on traded volume, however that impact was not statistically significant.

According to Table 4.3.2 based, on turnover liquidity of NMG shares increased by 81.8% after cross listing. The increase is not statistically significant as evidenced by the p-value of 0.125537 being greater than 0.05. Thus liquidity for NMG shares increased after cross listing based on turnover. Therefore cross listing of NMG shares had a positive impact on its shares liquidity based on turnover, however that impact was not statistically significant.

#### **4.4.3 Centum Investments**

Table 4.2.3 shows that liquidity for Centum Investments increased by 150% after cross listing when measured by traded volume. The increase in liquidity is statistically significant as evidence by the p- value of 0.000469179 being less than 0.05. This implies that Centum Investment shares experienced the biggest increase in their liquidity and the increase was statistically significant making them easily tradable compared to the other firms. Thus based on traded volume cross listing had a positive impact on Centum's share liquidity which was statistically significant.

On the other hand share liquidity increased as measured by turnover by 345.4% according to Table 4.3.3. This increase is statistically significant since the p- value of 0.000086 is less than 0.05. Centum share liquidity increased significantly based on turnover significantly after

cross listing. Thus cross listing of Centum's shares had a positive impact on their liquidity based on turnover. The positive impact was also statistically significant.

#### **4.4.4 Kenya Commercial Bank**

Share liquidity for KCB decreased by -32% after cross listing based on traded volume as shown in Table 4.2.4. The decrease in liquidity is not statistically significant since the p value of 0.286324 is greater than the 0.05. Therefore cross listing of KCB shares had a negative impact on their liquidity based on volume, however the negative impact is not statistically significant.

Liquidity also declined based on turnover by -27.9% after cross listing as shown in Table 4.3.4. This decline in liquidity is not statistically significant as evidenced by the p value of 0.288123 being greater than 0.05. Therefore cross listing of KCB shares had a negative impact on their liquidity based on turnover, however the negative impact is not statistically significant.

#### **4.4.5 Overall**

For the four companies, their combined liquidity increased after cross listing based on traded volume by 77.8% as shown in Table 4.3.5. This increase in shares traded was statistically significant as shown by the p-value of 0.0049 which is less than the level of significance 0.05. Thus for the cross listed firms cross listing had a positive impact on their share's liquidity; which was statistically significant.

On the other hand based on turnover, liquidity decreased after cross listing by -14.1%. the decline is mostly explained by the decrease in average price mean from sh. 85 year before cross listing to a mean of sh. 56 year after cross listing, representing a percentage change of -34.1% as shown in table 4.3.5. This decrease in average price may have been caused by other factors in the market. However the decrease in liquidity after cross listing is not statistically significant since the p-value is greater the level of significance 0.05. Thus based on turnover, cross listing of the firms shares had a negative impact on their liquidity, however this impact is not statistically significant.

#### **4.5 Discussion of Results**

Traded volume increased for three firms, namely; Centum, Equity Bank and Nation Media Group. These findings are consisted with those of Smith and Sofianos (1997) and Foerster and Karolyi (1993, 1998). Bancel and Mitoo (2001) also report that, on the basis of survey



done with Canadian and European firms that cross listing increases the total trading volume of the share of the firm in the primary market which in this case is the NSE. The increase is because cross-listing increases trading hours and the number of traders that have economic interest in the stock and, therefore, facilitates competition among traders. On the other hand traded volume for Kenya Commercial Bank declined after cross listing as observed by Levine et.al. (2003). the changes in trading volume can be attributed to factors such as changes in ownership after cross listing as shown by Doidge (2004).

Share liquidity improved for NMG and Centum when measured by turnover and for Equity Bank, Nation Media Group (NMG) and Centum Investments measured by traded volume. Of this only liquidity for Equity Bank and Centum were statistically significant. These results mirror those of Domowitz et al., (1998) and Foerster and Karolyi, (1998). The increased liquidity after cross listing means that the shares of the mentioned companies can be converted to cash easily and without a significant loss in value, hence making the companies more attractive to investors.

However this is not always the case as shown by Kenya Commercial Bank share liquidity decline after cross listing when measured by traded volume and Equity Bank and Kenya Commercial Bank when measured by turnover. The decline in share liquidity after cross listing was also observed by Domowitz et al., (1998) and Silva and Cha´vez, (2008) meaning that investors cannot easily convert their shares into cash without a significant impact on the share price, hence making the shares less desirable to investors after cross listing.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary of the Results

In respect to traded volume, it was noted that volume increased after cross listing. This is because three of the four firms; Centum, Equity Bank and Nation Media Group experienced an increase in their traded volume. Only Kenya Commercial Bank experienced a decline in the volume traded after cross listing.

From the data collected and analyzed, t-tests were conducted on trade volumes of all the four firms in the study, one year before and one year after cross listing. The t- tests for Equity Bank and Centum Investments were statistically significant while those of KCB and NMG were not statistically significant. This implied that when traded volume is used as a measure of liquidity, cross listing had a positive impact on Equity Bank and Centum shares' liquidity which was statistically significant. NMG's shares' liquidity was also positively impacted by cross listing; however the impact was not statistically significant. KCB shares' liquidity however was negatively impacted by cross listing. The impact was not statistically significant. Thus the market depth, resilience and tightness of Equity Bank, Centum and NMG's shares improved after cross listing, while that of KCB's shares declined.

The overall traded volume for the four firms increased after cross listing by 77.8%, which was statistically significant. Thus the shares' liquidity was impacted positively after cross listing and the impact was statistically significant. This implied that the market for these shares was deeper, more resilient and tighter after cross listing.

When turnover was utilized to measure liquidity, it emerged that turnover for the four firms declined after cross listing by -14.1%. However the decline was not statistically significant. This indicated that the firms' shares liquidity, together with its properties; depth, resilience and tightness were negatively impacted by cross listing, although the impact was not statistically significant.

Individually NMG and Centum turnover increased after cross listing, however only Centum's increase was statistically significant while that of NMG was not. For Equity Bank and KCB, turnover declined after cross listing which impacted their share liquidity negatively. This decline in turnover can be attributed to other factors in the market such as price fluctuations.

## **5.2 Conclusions**

### **5.2.1 Traded Volume**

In conclusion traded volume increased for Centum, Equity Bank and Nation Media Group which is consisted with the findings of Smith and Sofianos (1997) and Foerster and Karolyi (1993, 1998). Traded volume on the other hand declined for Kenya Commercial Bank, which was also observed by Levine et.al. (2003). of these results Equity Bank and Centum Investments were statistically significant while those of KCB and NMG were not statistically significant.

### **5.2.2 Turnover**

After cross listing turnover increased for Nation Media Group and Centum Investments while it declined for Equity Bank and Kenya Commercial Bank. The Equity Bank, Nation Media Group and Kenya Commercial Bank findings were not statistically significant, while those for Centum Investments were statistically significant.

### **5.2.3 Share Liquidity**

Share liquidity improved for NMG and Centum when measured by turnover and for Equity Bank, Nation Media Group (NMG) and Centum Investments measured by traded volume. Of this only liquidity for Equity Bank and Centum were statistically significant. These results mirror those of Domowitz et al., (1998) and Foerster and Karolyi, (1998). The increased liquidity after cross listing means that the shares of the mentioned companies can be converted o cash easily and without a significant loss in value, hence making the companies more attractive to investors.

However this is not always the case as shown by Kenya Commercial Bank share liquidity decline after cross listing when measured by traded volume and Equity Bank and Kenya Commercial Bank when measured by turnover. The decline in share liquidity after cross listing was also observed by Domowitz et al., (1998) and Silva and Cha´vez, (2008) meaning that investors cannot easily convert their shares into cash without a significant impact on the share price, hence making the shares less desirable to investors after cross listing.

From the results of the study, it can be generally concluded that cross listing generally impacts a firm’s shares liquidity and its properties; depth, resilience and tightness both positively and negatively according to the measure of liquidity utilized, although in most cases that impact is not statistically significant.

### **5.3 Recommendations for Further Study**

Based on the findings of the study, as a researcher I would recommend managers and policy makers to cross list for other reasons such as penetration of new markets and not share liquidity since most of the changes in liquidity were not statistically significant.

The study also recommends that research be done on market depth, tightness and resilience independently to ascertain how much they are affected by cross listing.

Further research should be done after duration of five years to establish the long term impact of cross listing on share liquidity. This is because this study aimed to look at the immediate impact of cross listing on share liquidity.

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## APPENDICES

### APPENDIX I: NSE Listed Firms Which Have Cross Listed to Other Exchanges

<b>Company</b>	<b>Primary Listing</b>	<b>Date of Cross Listing</b>	<b>Bourse where cross listed</b>
EABL	NSE	27th March 2001	USE
Kenya Airways	NSE	28th March 2002	USE
Kenya Airways	NSE	1st October 2004	DSE
EABL	NSE	29th June 2005	DSE
Jubilee Insurance Holdings	NSE	14th February 2006	USE
Jubilee Insurance Holdings	NSE	27th June 2006	DSE
KCB	NSE	29th Nov. 2008	USE
KCB	NSE	8th June 2009	RSE
Equity Bank Ltd	NSE	18th June 2009	USE
Centum Investments	NSE	11th February 2010	USE
Nation Media Group	NSE	2nd November 2010	USE
Nation Media Group	NSE	19th October 2010	DSE
Nation Media Group	NSE	21st February 2011	RSE
Uchumi Supermarkets	NSE	13 <sup>th</sup> November 2013	USE
Uchumi Supermarkets	NSE	14 <sup>th</sup> October 2013	RSE

*Source; Onyuma et al. (2012)*

## APPENDIX II: DATA COLLECTION SHEET

Name of Company.....

Month	Trade Volumes	Share Price
-12		
-11		
-10		
-9		
-8		
-7		
-6		
-5		
-4		
-3		
-2		
-1		
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		