The Effects of Regional Cross Listing on Firm Value and Financial Performance: Drawing Lessons for Lesotho

By Moeti Damane[1]

Abstract

THIS RESEARCH determines the effects of regional cross listing on firm value and financial performance and draws policy lessons for Lesotho. Using event study methodology, financial ratio analysis and a regional case study of two Sub-Saharan African firms that cross listed on the Johannesburg Stock Exchange in 2015 and 2016, the results of the study reveal that cross listing leads to increased firm liquidity coupled with positive and statistically significant abnormal returns. These findings confirm the legal bonding theory, the signalling theory, the investor recognition theory and the liquidity theory. It is recommended that the empirical findings of this study be used by authorities to draw locally incorporated firms' attention to the potential benefits of cross listing. This should be done in conjunction with initiatives that identify and unlock any bottlenecks that act as deterrents for company listing on the Maseru Securities Market.

Keywords: Securities exchange, Cross listing, Financial ratios, Market segmentation, Event Study Methodology

JEL classification: G0, G1, G2, G4

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1 INTRODUCTION

1.1 Background

PART OF THE Central Bank of Lesotho's functions, as outlined in the Central Bank Act of 2000, is to promote safe and sound development of the financial system as well as to monitor and regulate the country's capital markets. Lesotho's securities exchange is the Maseru Securities Market (MSM). The MSM is a non-profit making institution created for the fundamental objective of facilitating the centralised trading of financial securities in a secure environment that enhances confidence while at the same time does not suffocate market development in the country. The MSM was established by law in 2014 through the enactment of the Central Bank (Capital Markets) Regulations, 2014 and it was officially launched in January 2016. It forms part of Lesotho's capital market development framework as espoused under the Central Bank of Lesotho (CBL) Financial Sector Development Strategy (FSDS)[1], 2012.

The MSM operates under the Central Bank (Capital Markets) Regulations, 2014 as the legal and regulatory framework for stock markets in the country. The relative infancy of the securities exchange coupled with the fact that it currently does not have any companies listed on it[2], means that it is yet to prove its market efficiency in raising capital as well as its attractiveness to investors (retail and institutional). Inactivity in the MSM implies that Lesotho still has a long way to go in terms of capital market development and the broadening of access to finance. Molapo and Damane (2016) pointed out that in Lesotho, the supply of investment finance to firms in the country is dominated by commercial bank credit. This heavy reliance on bank credit

[1] The FSDS follows from Lesotho's National Strategic Development Plan (NSDP) objectives for the financial sector. It was developed by the CBL in conjunction with the International Monetary Fund (IMF) and the World Bank through the financial Section Reform and Strengthening (FIRST) initiative.

[2] Some of the reasons companies have not yet listed on the MSM have to do with unclear and less than conducive listing requirements (PwC, 2017a and PwC, 2017b).

as opposed to a mix of bank-based and market-based (equity) finance leads to higher costs of borrowing for the country's firms. The consequence is less corporate investment in the economy and economic rigidity in the transition from an economy dominated by the traditional agrarian sector to one that engages in modern industrial activities (Chakraborty and Ray, 2006 and Molapo and Damane, 2016). According to Adelegan (2008), in other African countries, equity finance plays a significant source of finance for firms. For example, between 1996 -2002, equity finance accounted for 39 per cent of total asset growth of listed companies in South Africa, 25 per cent in Zimbabwe between 1990 – 1999 and 40 per cent in Nigeria between 1990 and 2000. Adelegan (2008), UNCTAD (2014) and Onyuma *et al.* (2012) posited that greater access to finance and stock market development in smaller emerging countries can be attained if the development of the capital markets is done at the regional level through greater regional integration.

Capital market development, greater access to finance and regional integration are key deliverables under the strategic objectives of the FSDS. In light of this and the above, the objective of the study is therefore to fill the knowledge gap by providing policy makers, domestic firms, investors, advisors and other market participants with evidence on the effects of regional cross listing on firm value and financial performance. However, since the MSM is still in its nascent stage with no local firms listed on it at the time of this study, it is not possible to ascertain the benefits that can accrue to companies incorporated in Lesotho with a primary listing on the MSM and a cross listing on a relatively more developed regional stock exchange. To overcome this challenge, the study uses event study methodology, financial ratio analysis and a regional case study approach[3] to investigate the effects of regional cross listing on a sample of two non-Lesotho firms from Sub-Saharan Africa (SSA).

The remainder of the paper is divided into six parts. Section 2 presents the profiles and fundamentals of selected stock exchanges in SSA. Section 3 presents a review of relevant literature. Section 4 presents data and methodology. Section 5 offers a discussion of the results.

[3] Regional cross listings are used as a case study due to the proximity preference theory. The proximity preference theory is explained in Section 3 of this paper.

Section 6 lays out the conclusion and policy recommendations. This is followed by Section 7, which underscores areas of further research.

2 PROFILES AND FUNDAMENTALS OF SELECTED STOCK EXCHANGES IN SUB SAHARAN AFRICA

When a company cross lists into a smaller securities market that handles lower trade volumes and lower market capitalisation, the effect is not the same as when it cross lists into a more prestigious securities exchange with more stringent markets and relatively higher market capitalisation (Onyuma et al., 2012). Since our study uses a regional case study approach to determine the effects of cross listing on firm value and financial performance, it is necessary to first note the profiles and fundamentals of a select group of Sub-Saharan African (SSA) stock exchanges. The stock exchanges are chosen on the basis of them being from countries that are members of the Southern African Development Community (SADC). In addition, the stock exchanges are members of the African Securities Exchange Association (ASEA)[4] and the Committee of SADC Stock Exchanges (CoSSE)[5]. The exchanges that fit these criteria are: Botswana Stock Exchange (BSE); Johannesburg Stock Exchange (JSE), Namibia Stock Exchange (NSX); Mozambique Stock Exchange (BVM); Stock Exchange of Mauritius (SEM); Malawi Stock Exchange (MSE); and the Zimbabwe Stock Exchange (ZSE). The selected stock exchanges' profiles are presented in Appendix 1 while their respective fundamentals[6] are presented in Appendix 2.

From Appendix 2, the JSE has the highest number of listed firms at 400 followed by the SEM at 88 while the MSE had the least number of listed firms at 3. In addition, the JSE has the highest market capital at US$998.3 billion followed by the NSX and the BSE with US$144.1 billion

[4] The African Securities Exchanges Association (ASEA) was established in 1993. It is the Premier Association of 27 Securities Exchanges in Africa, that have come together with the aim of developing Member Exchanges (achieving common listing requirements and disclosure standards applicable to advanced capital markets) and providing a platform for networking (integration of African exchanges through technology).

[5] The Committee of SADC Stock Exchanges (CoSSE) was established in 1997. It is a collective body of the various stock exchanges in the Southern African Development Community (SADC). Although CoSSE is essentially a private sector association, it forms part of SADC structures as it has a formal status under the SADC Finance and Investment Protocol (FIP).

[6] 2012 information is used in this case since 2012 data is the most recent and readily available market fundamental data per selected stock exchange obtainable from the ASEA yearbooks.

and US$53 billion, respectively. The lowest market capital is registered by the MSE at US$1.02 million. In 2012, the JSE boasted the greatest total value of stock traded at US$408.6 billion followed the NSX at US$494.5 million. Similarly, the highest total number of transactions were recorded by the JSE at 61.8 billion followed by the ZSE with 3.5 billion. According to Luo (2016), the turnover ratio can be used as a measure of stock market liquidity. If this ratio is considered, it can be concluded that the JSE followed by the ZSE and the SEM are by far the most liquid stock exchanges out of the group with turnover ratios of 40.9 per cent, 11.31 per cent and 4.97 per cent respectively. If a stock market has low or poor liquidity, this can be a significant deterrent to international investment and can also have the consequence of poor pricing of markets (JSE, 2018). The domestic market capitalisation as a per cent of gross domestic production (GDP) can be used to measure stock market development (Bayraktar, 2014; Anokye, 2016 and Ooi *et al.* 2017). Using this definition of stock market development, the three most developed stock exchanges in the group are the NSX, JSE and SEM.

The top five most active sectors in the selected group of stock exchanges for 2012 is reflected under Appendix 3. Pronounced stock market activity in the banking, insurance and financial services sectors was the most common among the select group of stock exchanges. The second most popular sector was mining which was reflected as an active sector on the JSE and BSE. It can therefore be argued that companies that participate in such sectors of production have a heightened chance of raising capital by cross listing in the relevant stock exchanges.

3 LITERATURE REVIEW

This section discusses the theoretical and empirical literature pertaining to cross listing. The theoretical review of the literature will focus on the value implications of cross listing and how theory explains these possible implications. The empirical review of the literature will cover studies on cross listing done in both developed and developing countries.

3.1 Theoretical Review of Literature

Cross listing is defined as the listing of a company's ordinary shares on a different stock exchange other than its original stock exchange. A company's decision to cross list its shares on a foreign

exchange is often underpinned by elements of market efficiency or inefficiency. Fama (1970, 1991), Chisadza, (2003) and Dodd (2011) elaborated that an efficient capital market is one whose prices always fully reflect available information. This characteristic makes it easy for investors to choose between securities that adequately represent firms' activities. Cross listings would be redundant if markets were perfectly efficient since investors would be indifferent where to invest and companies would be indifferent where to list their stocks in the absence of any investment barriers or home bias (Berg, 2012).

Based on work by Fama (1970, 1991); Merton, (1987); Serra (1999); Hargis (2000); Coffee (2002); Lang *et al.* (2003); Chisadza (2003); Smirnova (2004), Claessens *et al.* (2006); Cetorelli and Peristiani (2010), Dodd (2011); Onyuma *et al.* (2012); Berg (2012); Dodd (2013); and Cheronoh (2015), the theories that underscore a company's decision to cross list are summarised in Table 1 below. A detailed explanation of each theory is presented in Appendix 4.

Table 1 Summary of Theories that Underscore Cross Listing Decisions

Theory	Summary Explanation
The legal bonding theory	A company is able to effectively bond to the stricter legal environment of the target market through cross listing.
The signalling theory	Company managers are able to adequately convey information about the firm's quality and future prospects.
The capital market segmentation theory	Cross listing results in a wider investment base, wider risk sharing (lower risk) translates into lower cost of capital[7].
The information asymmetry theory	Cross listings mitigate against the adverse effects of information asymmetry on price discovery (determination of proper price of a security).
The liquidity theory	Transactions (buying and selling of shares) can be executed easily and with less of an impact on the share price. Liquidity in turn means lower risk.
The investor recognition theory	Wider recognition of a company's shares translates into access to a wider investor base and wider risk sharing. The consequence is lower risk and lower cost of capital.
The proximity preference theory	Investors and corporate decision makers often have a domestic bias (i.e.) they favour companies that are similar in terms of geography, economy, culture and industry.
The market timing theory	Corporate managers conduct listings during the hot market[8] periods in stock markets.
The business strategy theory	Cross listings can coincide with a company's need to raise equity and thus could be part of their globalization strategy that is expected to offer visibility and possible comparison with peers.

[7] The impact of cross listing on the cost of capital is enshrined in the Estimation Risk Hypothesis (ERH). The ERH asserts that the cost of capital is a function of the estimation risk such that the more accurate investors are able to assess the prospects for a company, the lower is its expected cost of capital (Brown and Warner, 1985).

[8] A situation characterised by unusually rising initial returns and high volume of initial public offerings (i.e.) increase in the size of market capitalization as a ratio of gross domestic product (Dodd, 2011 and Neneh and Smit, 2013).

From Table 1, it can be concluded that the legal bonding theory, liquidity theory and investor recognition theory each cite better quality host markets as a major benefit of cross listing. Interestingly, the market segmentation theory (and the investor recognition theory) when compared to the proximity preference theory both argue benefits of cross listing although from totally opposite perspectives. For instance, the market segmentation theory indicates that cross listing is beneficial to shareholders when the host market is least comparable to the home market. On the other hand, the proximity preference theory espouses that benefits of cross listing to shareholders arise when the host market is most familiar or similar to the home market.

The discussion above has articulated some of the main reasons why firms would choose to cross list their shares on a foreign exchange. In addition to the afore mentioned theories, Serra (1999); Hargis (2000); Lang *et al.* (2003); Chisadza (2003); Claessens *et al.* (2006); ASEA (2013b) and JSE (2018) indicated that cross listing can also mean broader competitiveness in regional financial systems coupled with greater impetus for financial sector reforms, capital market development and economic growth in the domestic market.

3.2 Empirical Review of Literature

Serra (1999) examines the effects on stock returns of dual-listings on an international exchange using event study methodology and a sample of 70 firms from 10 emerging markets that dually listed on the NYSE[9], NASDAQ[10] and SEAQ-I[11] (London) over the period 1991 – 1995. The study doesn't only assess the impact of dual listings on firm value and performance but it also compares the impact of a US listing against a London listing. The results of the study supported the market segmentation hypothesis. That is, firms in the sample experienced positive abnormal returns before listing followed by a significant decline in their returns after listing, a development that reflects better risk sharing.

Jayakumar (2002) investigates the impact of international cross listings on local stock exchanges by focusing on the experience of Chile. Using a generalized method of moments (GMM)

[9] New York Stock Exchange.
[10] National Association of Securities Dealers Automated Quotations Exchange.
[11] Stock Exchange Automated Quotation.

technique and a sample of 14 Chilean companies with domestically traded shares that undertook American Depository Receipts (ADR) listings, the results of the study reveal that there is no order-flow migration from the domestic market following the cross listings. The analysis also discovered that when market measures of size and liquidity are considered, the ADR market grew more than the domestic stock exchange. Therefore, the conclusion is that increased numbers of international cross listings appear to relegate the local stock markets to secondary players relative to the host exchanges. The implication is an adverse effect on domestic financial development.

Baker *et al.* (2002) examines the visibility of non-United States (US) securities listed on the New York Stock Exchange (NYSE) and non-United Kingdom (UK) securities listed on the London Stock Exchange (LSE). Visibility is measured in terms of (i) the number of analysts estimating the firm's annual earnings, and (ii) the number of citations a firm gets in an article title or lead paragraph appearing in the Wall Street Journal (WSJ) and Financial Times (FT). The results of the study confirm the investor recognition theory. International firms listing their shares on the NYSE or the London Stock Exchange (LSE) experience a significant increase in visibility, as proxied by analyst coverage and print media attention (The WSJ or FT). The increase in analyst following is also associated with a decrease in the cost of equity capital after the listing event.

Adelegan (2008) investigated the impact of regional cross listing of stocks on the depth of the stock markets in sub-Saharan Africa (SSA) using event study methodology (ESM) and data from 1990 to 2007 for a panel of 13 stock markets in SSA countries. Using market based measures of stock market development (market capitalisation, market capitalisation as a percentage of GDP and the number of listed firms), the results of the study discovered that regional cross listing had significant positive effects on stock market depth and that stock markets of countries with regional cross listings perform better than those without.

Onyuma *et al.* (2012) investigates the effect of cross listing on three Kenyan firms' value and financial performance before and after they cross listed on securities exchange in Eastern Africa. Using an event study timeline of six years (three years before and after the cross listing) and financial ratio analysis (liquidity, profitability, gearing and investor ratios) the results of the study reveal low, yet positive financial performance of the firms in terms of liquidity upon cross listing.

In addition, the market confidence in each of the firms, as measured by the price per earnings ratio also improved. On the whole, the study concluded that firms may benefit from cross listing in terms of liquidity and confidence.

Makanga and Gateri (2014) used event study methodology, financial ratio analysis and correlation analysis to determine the effects of regional cross listing on a sample of East African firms that cross listed between the years 1997 to 2013. The study's event study timeline spans 36 months before cross listing and 36 months after cross listing. The results of the study confirmed the legal bonding theory and the liquidity theory as cross listing yielded increases in firm value and liquidity although this impact was not sustained two years after cross listing. Importantly, cross listing resulted in a decrease in firm leverage, growth and operational performance while the profitability increased.

4 DATA AND METHODOLOGY

The study population and sampling frame is a list of firms incorporated in any of the six SADC countries[12] (excluding South Africa) identified in Section 2 that have a primary listing on any of the six stock exchanges[13] (excluding the JSE) identified in Section 2 and a cross listing on the JSE. The JSE is chosen because it is among the top 19 stock exchanges in the world by market capitalisation and it is a member of the World Federation of Exchanges (WFE). (JSE, 2018) explained that being member of the WFE is important because institutional investors are mandated to invest only through exchanges that belong to the WFE. Out of the list of selected SSA exchanges, only the JSE and SEM are members of the WFE. However, according to WEF (2017), the JSE is ranked number 25 out of 137 countries when it comes to financing through local equity markets while Mauritius is ranked number 33.

According to National Treasury (2017), by the end of 2016, there were 387 companies listed on the JSE. Of the 387, 75 (about 20 per cent) were foreign domiciled companies while the remaining 312 (about 80 per cent) were South African companies. Table 2 presents a list of companies from the SADC region that were cross listed on the JSE in the first quarter of 2018.

[12] Botswana; Namibia; Mozambique; Mauritius; Malawi and Zimbabwe.
[13] BSE; NSX; BVM; SEM; MSE and ZSE.

During this period, there were a total of seven non-South African companies from the SADC region that were cross listed on the JSE.

Table 2 Names of Companies from SADC Region with Cross Listing on JSE in first quarter 2018

Name of Company	Country of Origin	Date of Cross Listing on JSE
Cafca Ltd.	Zimbabwe	11th March 1946
Hwange Colliery Ltd	Zimbabwe	24th November 1953
Mainland Real Estate Ltd.	Mauritius	9th December 2016
Go Life International Ltd.	Mauritius	23rd November 2016
Universal Partners Ltd.	Mauritius	11th August 2016
Choppies Enterprises Ltd	Botswana	27th May 2015
Wilderness Holdings Ltd.	Botswana	8th April 2010

Source JSE

In light of data challenges, non-probability sampling (purposeful sampling) was used to select two firms from the sampling frame. Purposeful sampling is advantageous since it selects information-rich cases for the most effective use of limited resources (Palinkas *et al.*, 2015). Table 3 presents a list of the two firms selected into the sample. The sample comprises of one firm from Mauritius; Go Life International Ltd. (pharmaceuticals and biotechnology company) and one firm from Botswana; Choppies Enterprises Ltd. (food and drug retailer).

Table 3 General Information on the Sampled Firms

Country	Firm	Country of Origin	Country of Origin	Country of Origin	Date of Cross Listing on JSE
Botswana	Choppies Enterprises Ltd.	27th May 2015	CHOPP	DCIBT*	Food and Drug Retailers
Mauritius	Go Life International Ltd.	23rd Nov 2016	GOLI	SEMDEX**	Pharmaceuticals and Biotechnology

* The DCIBT (Botswana Gaborone Index) is a major stock market index which tracks the performance of the biggest companies traded in the Botswana Stock Exchange. It is a capitalization-weighted index.
** The SEMDEX is an all-share index designed to capture the price evolution of all the ordinary shares listed on the Official Market which met the SEM's free-float requirements as defined in the listing rules of the Official Market.

The instrument code for Go Life International Ltd. and Choppies Enterprises Ltd. on their primary listings are GOLI and CHOPP, respectively. The main market indices in the BSE and SEM are DCIBT and SEMDEX, respectively. An extensive profile of each of the two firms selected into the sample is provided in Appendix 5.

4.1 Data Description

The study uses a combination of annual and monthly firm data. Annual data is used to calculate firms' financial ratios while monthly data is used to calculate firms' stock returns and the market index returns[14]. For stock return data, monthly data is preferred over daily data because monthly stock return data relative to daily stock return data departs less from normality (Fama, 1976; Brown and Warner, 1985). In addition, estimation of model parameters using daily stock return data is vulnerable to the negative effects of non-synchronous trading[15]. Non-synchronous trading can cause bias and inconsistent model parameters following OLS estimation. Furthermore, non-synchronous trading is likely to lead to (a) lag 1-cross correlation between stock returns, (b) lag-1 serial correlation in a portfolio return and (c) negative serial correlations of the return series of a single stock (Brown and Warner, 1985; Strong, 1992 and Tsay, 2005). The type of data collected, its frequency and its sources are reflected in Table 4.

Table 4 Type of Data Collected and Sources

Type of Data	Frequency	Source of Data
Current Assets	Annual	Annual Reports – Group Financial Statements
Current Liabilities	Annual	Annual Reports – Group Financial Statements
Inventories	Annual	Annual Reports – Group Financial Statements
Total Assets	Annual	Annual Reports – Group Financial Statements
Sales / Revenues	Annual	Annual Reports – Group Financial Statements
Operating Income	Annual	Annual Reports – Group Financial Statements
Earnings Before Interest and Taxes (EBIT)	Annual	Annual Reports – Group Financial Statements
Profit After Tax	Annual	Annual Reports – Group Financial Statements
Common Equity	Annual	Annual Reports – Group Financial Statements
Total Shares Outstanding	Annual	Annual Reports – Group Financial Statements
Dividends per Share	Annual	Annual Reports – Group Financial Statements
Level of Long-term Debt	Annual	Annual Reports – Group Financial Statements
Market Price of Share	Monthly	www.investing.com
Market Index	Monthly	www.investing.com

[14] Firms' stock returns and the market index returns are calculated on data respective to the stock exchange where the company has its primary listing. This is because the stock exchange of the primary listing in our case has stock returns for before and after the company's cross listing on the JSE.
[15] Non-synchronous trading explains that different stocks have different trading frequencies and different trade intensities from hour to hour and from day to day (Tsay, 2005).

4.2 Data Analysis

Similar to Jayakumar (2002), Onyuma *et al.* (2012), Makanga and Gateri (2014) and Rani *et al.* (2016) the study makes use Event Study Methodology (ESM) and financial ratio analysis to determine the effects of regional cross listing on firm value and financial performance. The use of the ESM and financial ratio analysis is done with due consideration of the Modern Financial Theory[16] and the semi strong form of the Efficient Market Hypothesis[17].

4.2.1 Event Study Methodology (ESM)

ESM provides a way to empirically investigate the relationship between security prices and a market event, such as a merger, cross listing, hiring of a new chairman, launching of a new product, earnings announcement etc. (Coutts *et al.*, 1995; Adelegan, 2008 and Rani et al., 2016). A major advantage of ESM is that it bypasses the problems of accounting convention as well as the measurement associated with accounting returns. It does this by measuring the impact of an event (say; a cross listing) in terms of unexpected or abnormal return[18] on the underlying security. That is, it compares the actual return realised on the time of the event with the expected or normal return in the absence of the event (Brown and Warner, 1980; Strong, 1992; Cable and Holland, 1999; Adelegan, 2008 and Rani *et al.*, 2016).

In this study, the event is considered to be the month in which a firm's stock was cross listed. A combination of three ESM are used to calculate firms' abnormal returns. The three ESM are: (i) the Mean Adjusted Return model (MAR), the Market Adjusted Return model (MKAR) and the Risk Adjusted Return model (RAR). The three models are presented in equations 1, 2 and 3 below. Although the paper will make use of all three ESM methodology, Brown and Warner (1980), Strong (1992), Cable and Holland (1999) and Adelegan (2008) noted that the RAR has

[16] A company's stock price is a function of its current price and the summation of its expected future dividends. That is to say, the stock price takes into consideration all available information and expectations about the future. Owing to this theory, it is therefore possible to analyse the effect of an event (in this case; cross listing) on a firm by looking at the associated impact on the firm's stock.

[17] Asset prices already reflect all publically available information. As a result, it is not possible to earn abnormal (excess) return beyond the event period using fundamental or technical analysis. The validity of this hypothesis is tested or verified using Event Study Methodology (ESM).

[18] A stock's abnormal return is the return generated by the stock (during an event) that is different from the expected or normal return (Brown and Warner, 1980).

more power[19] over the MAR and the MKAR. The RAR results in smaller variances between the abnormal returns and relative raw returns. Moreover, there are smaller correlations across security abnormal returns under the RAR, making it conform closer to standard statistical tests.

a) Mean Adjusted Returns Model (MAR)

The MAR is presented in equation 1. Equation 1 explains that the abnormal return of a particular stock at time t is equal to the difference between the observed return of the stock at time t and the average return on a particular stock over the estimation period.

$$AR_t = R_t - \bar{R}_t \quad (1)$$

Where:
AR_t is the abnormal return at time **t**.
R_t is the stock return at time **t**.
$\bar{R}_t$ is the average return on stock over the estimation period.

One criticism of the MAR is that it assumes no change in normal returns in the absence of an event (Cable and Holland, 1999).

b) Market Adjusted Returns Model (MKAR)

The MKAR is presented in equation 2. Equation 2 is also known as the Index Model (IM). It explains that the abnormal return of a particular stock at time t is equal to the difference between the observed return of the stock at time **t** and the expected return on the market portfolio at time **t**.

$$AR_t = R_t - R_{Mt} \quad (2)$$

Where:
AR_t is the abnormal return at time **t**
R_t is the stock return at time **t**
R_{Mt} is the average return on stock over the estimation period

[19] The RAR has less likelihood to commit a Type I error (Brown and Warner, 1980).

c) Risk Adjusted Returns Model (RAR)

The RAR is presented in equation 3. Equation 3 is also known as the Market Model (MM). It explains that the abnormal return of a particular stock is the difference between the return on the stock at a particular time and a systematic component that is linearly related to some market index at time **t**.

$$AR_t = R_t - (\hat{a} - \beta R_{M.t}) \quad (3)$$

Where:
AR_t, R_t and $R_{M.t}$ are as previously defined.
$\hat{a}$ and β are parameter estimates from a regression of the stock against the market index.
β is also known as the volatility[20] or the systematic risk of the stock in comparison to the market as a whole. It represents the risk that cannot be removed by diversification. Therefore, it is the only form of risk for which investors are entitled to receive an expected return higher than the risk free rate of return.

The RAR is a regression based model that can be estimated with ordinary least squares (OLS)[21]. Under this approach, the appropriate unit root tests[22] and relevant residual diagnostics[23] are conducted to satisfy that the model variables are stationary and that the residuals are white noise. In addition, the model is subjected to specification error tests using the Ramsey RESET to make sure that it is not misspecified. Draper and Paudyal (1995) indicated that the market model also has to be tested for stability. Suitable tests in this respect are the CUSUM and CUSUM of Squares tests.

[20] If a security has a beta of 1.00, this indicates that it will move in tandem with the market on an even basis. A beta less than 1.00 means the security is less volatile than the overall market or that it is volatile and has its price movements less correlated with the market. Conversely, a beta greater than 1 means the security is volatile but tends to move up and down with the market.
[21] In accordance to Strong (1999), the estimation of the RAR using OLS assumes that the sample securities have no unrepresentative exposure to extra-market factors and that the event dates are diffusely spread out in calendar time for the sample securities.
[22] The Augmented Dickey and Fuller (1979, 1981) and the Phillips and Perron (1988) unit root tests are used.
[23] The Breusch-Godfrey test for autocorrelation, Jarque-Bera test for normality of residuals, Breusch-Pagan-Godfrey test for heteroscedasticity.

d) Calculating Stock Returns

Before either the MAR, MKAR or RAR can be calculated, stock returns have to be calculated. From equation 1, $\boldsymbol{R_t}$ can be calculated either in discrete terms or logarithmic terms as follows:

Discrete returns:

$$\frac{\boldsymbol{P_{jt} + D_{jt} - P_{jt-1}}}{\boldsymbol{P_{jt-1}}} \quad (4)$$

Logarithmic returns:

$$\mathbf{log}\left[\frac{\boldsymbol{P_{jt} + D_{jt}}}{\boldsymbol{P_{jt-1}}}\right] \quad (5)$$

Where:

$\boldsymbol{P_{jt}}$ is the share price of company **j** at the end of period **t** adjusted for any capital changes in order that it is comparable to $\boldsymbol{P_{jt-1}}$

$\boldsymbol{D_{jt}}$ is the dividends paid during period t adjusted for the sample capital changes described above

$\boldsymbol{P_{jt-1}}$ is the share price of company **j** at the end of period **t - l**

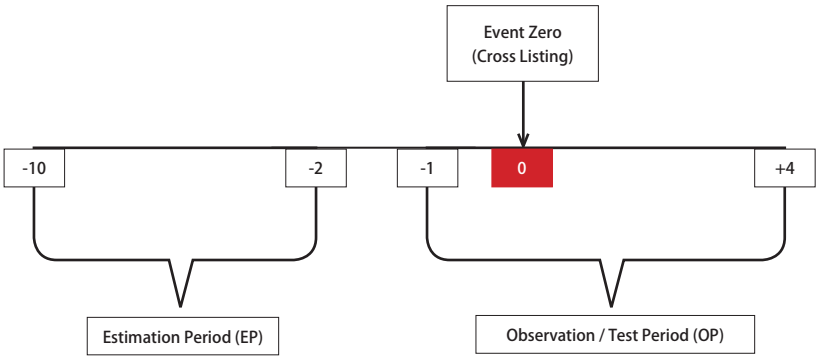
The study will calculate and make use of the logarithmic return. Strong (1992) explained that logarithmic returns are more suited to the assumptions of standard statistical techniques used under ESM since they are more likely to be normally distributed. In addition, logarithmic returns are easier to work with when linking together sub-period returns to form returns over longer intervals since one can simply add up the respective sub-period returns.

e) The ESM Timeline

The event study timeline in months is presented in Figure 1. The timeline is chosen as -10, through 0, to +4. Here, 0 corresponds to the month of cross listing. A 14-month event study timeline has been used with the assumption that no other significant event could have affected share price movements in that period (the problem of confounding events). Rani *et al.* (2016)

explained that having long event study timelines is discouraged since they can undermine the power of the test statistic and lead to false inferences. Moreover, long timelines can increase the likelihood of contemporaneous and inter-temporal correlations of residuals which can underestimate standard errors.

Figure 1 The Event Study Timeline in Months



Source: Authors' Illustrations

The event study timeline is divided into the estimation period (EP) and the observation period (OP). The EP will be used to estimate the parameters of the benchmark expected return ($\boldsymbol{R}$, $\boldsymbol{R_{M,t}}$, $\hat{\boldsymbol{a}}$ and $\boldsymbol{\beta}$, respectively). As indicated in figure 1, the EP spans from ten months before event zero (cross listing) to two months before the event. Strong (1992) and Coutts *et al.* (1995) explained that the EP is arbitrarily chosen in such a way that it is close to the OP yet further away from it that the specific event is expected to have no impact on stock prices. Therefore, the EP represents a period in which there are no persistent abnormal returns. On the other hand, the OP spans from one month before event zero to four months after it. The calculation of the abnormal returns is done within the OP.

Considering the event study timeline, if abnormal returns occur on event zero, then the conclusion is that the market is responding appropriately to the quality of information around the public event (cross listing). However, if abnormal returns are observed persistently two months to four months after event zero, then the validity of the semi strong form of the efficient market hypothesis with respect to this event should be questioned. The lingering of

the abnormal returns in this case implies that the market is not efficient since it is not quickly incorporating the new information in the pricing of the stock. Conversely, if abnormal returns are observed prior to event zero, say two months before event zero, this could be the result of market anticipation of the public event triggered by legitimate sources of information, namely, rumours in the media about the possibility of the event occurring (Borges and Gairifo, 2013).

f) Testing the Statistical Significance of the RAR Abnormal Returns

Given the abnormal returns based on the RAR, the statistical significance of the abnormal returns for each observation under the OP (including event zero – the cross listing) is assessed using the parametric t-test. This approach is similar to the one used by Brown and Warner (1985). The test statistic is described as the ratio of the month '0' abnormal return to its estimated standard deviation (SD); where the standard deviation is estimated from the respective share returns under the EP.

The null hypothesis H_0: Abnormal Returns = 0 (i.e. Cross listing on the JSE has no effect on the returns of the share)

The alternative hypothesis H_1 : Abnormal Returns ≠ 0 (i.e. Cross listing on the JSE has an effect on the returns of the share)

Abnormal returns are deemed statistically significant if the test statistic is greater or equal to 1.96[24].

4.2.1 Financial Ratio Analysis

Information gathered from the group financial statements of the two firms under study will be used to calculate each firm's respective financial ratios[25]. The financial ratios used in this paper are a mix of liquidity, profitability, gearing and investor ratios. Barnes (1987) explained that the liquidity, profitability and gearing ratios convey a sense of a company's operational performance while the investor ratios provide a general sense of how the value of the company was affected

[24] 1.96 is the approximate value of the 97.5 percentile point of the normal distribution.
[25] The financial ratios used in this paper are presented and explained in Appendix 6.

(increased or decreased) pre and post the cross listing. The financial ratios will be calculated over a 3-year period (inclusive of the year of cross listing with one year before the year of cross listing and one year after the year of cross listing). Therefore, the financial ratios of Choppies Enterprises Ltd. will cover the period from 2014 to 2016 while those of Go Life International Ltd. will cover the period from 2015 to 2017.

5 DISCUSSION OF RESULTS

5.1 Choppies Enterprises Ltd.

First, the results of the unit root tests, residual diagnostics, model specification tests and model stability tests with respect to the components of the RAR for Choppies Enterprises Ltd. are presented in Table 5.

Table 5 Results of unit root tests and diagnostic tests

Unit Root Tests		Residual Diagnostics		Model Specification Error Test		Model Stability Tests	
Type of Test	*Results of Test*	*Type of Test*	*Results of Test*	*Type of Test*	*Results of Test*	*Type of Test*	*Results of Test*
ADF	Variables are stationary at levels	***Jarque-Bera test for normality***	Residuals are normally distributed	***Ramsey RESET test***	Model is well specified	***CUSUM***	Model is stable
PP	Variables are stationary at levels	***Breusch-Godfrey test for autocorrelation***	Residuals are not auto correlated			***CUSUMQ***	Model is stable
		Breusch-Pagan-Godfrey test for heteroscedasticity	Residuals are homoscedastic				

*A detailed presentation of each test is not included in this paper but it can be made available upon request.

Source: Author

Table 5 indicates that the logarithmic returns of the DCIBT and CHOPP are respectively stationary at levels when tested with the ADF and PP tests. In addition, the Jarque-Bera test for normality, the Breusch-Godfrey test for autocorrelation and the Breusch-Pagan-Godfrey test for heteroscedasticity confirm that the residuals are white noise. The Ramsey RESET test for model specification coupled with the CUSUM and CUSUMQ stability tests endorse that

no misspecification was identified in the model and the model is stable, respectively. The data generation process (DGP) of the model can therefore be trusted.

Table 6 reflects the abnormal returns for CHOPP as calculated from the MAR, MKAR and RAR models during the OP, April 2015 to September 2015. The mean return is 0.01 while the measure of volatility or the systematic risk of the stock relative to the market ($\boldsymbol{\beta}$)is calcuated as -0.24. This shows that CHOPP had less volatility relative to the market throughout the EP. On the other hand, the standard error value of 0.01 is low and suggests that the sample mean is an adequate representation of the population mean.

Table 6 Abnormal Returns for CHOPP during the OP

Month	MAR	MKAR	RAR	t stat*	Decision*
Apr 2015	-0.02	-0.05	-0.02	-2.02	significant
May 2015	0.09	0.05	0.10	11.41	significant
Jun 2015	0.07	0.06	0.07	8.44	significant
Jul 2015	0.02	0.01	0.03	2.97	significant
Aug 2015	0.04	0.05	0.04	4.60	significant
Sep 2015	-0.22	-0.19	-0.23	-26.00	significant
EP: August 2014 – March 2015. **OP**: April 2015 - September 2015. $\boldsymbol{R_t}$: *0.01* $\hat{\boldsymbol{a}}$: *-1.23* $\boldsymbol{\beta}$: *-0.24* $\boldsymbol{SD}$: *0.01*					
*Parametric t-statistics and corresponding decisions on significance are calculated on the RAR only.					
Source	Author				

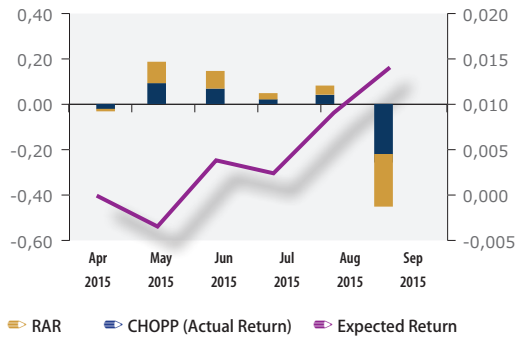
During the OP, all three abnormal return models (MAR, MKAR and RAR) indicate that CHOPP experienced statistically significant and negative abnormal returns a month before the month of cross listing. According to Borges and Gairifo (2013), this could be proof that the market was already anticipating the event. However, the actual returns a month before the month of cross listing fell below the expected returns. Conversely, during the month of cross listing, May 2015, the MAR, MKAR and RAR show that CHOPP enjoyed positive abnormal returns ranging from 0.05 to 0.10. This underscores the market's favourable response to the listing of Choppies Enterprises Ltd.'s shares on the JSE. The abnormal returns under the RAR model are positive, statistically significant and the highest out of the three abnormal return models at 0.10. This result signifies that the cross listing of Choppies Enterprises Ltd.'s shares on the JSE had a positive impact on the firm's value. The findings are in line with those by Serra (1999), Baker et al. (2002), Coffee (2002), Adelegan (2008), Onyuma et al. (2012) and Makanga and Gateri

(2014) in that they confirm the legal bonding theory, the signalling theory and the investor recognition theory.

Subsequent to the month of cross listing, the abnormal returns from the RAR model remain statistically significant and positive (although relatively lower) for three months, before they turn negative in the last month of the OP. This brings into question the validity of the semi strong form of the efficient market hypothesis. The fact that abnormal returns are found to be lingering after the event could allude that the market was not quick to incorporate the cross listing information of CHOPP in the pricing of the stock.

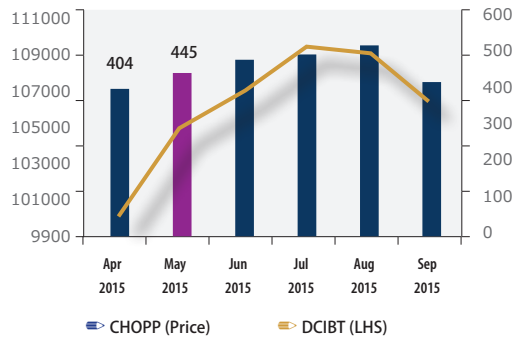
Figure 2 provides graphical representation of the expected return, actual return and risk adjusted abnormal return of CHOPP during the OP. Figure 3 indicates the price of CHOPP in Botswana Pula (BWP) as well as the value of the market index, DCIBT during the OP.

Figure 2 CHOPP Expected Return, Actual Return and RAR during OP



Source: www.investing.com and Authors' calculations

Figure 3 Price of CHOPP in Botswana Pula (BWP) and Value of DCIBT during OP



Source: www.investing.com and Authors' calculations

From Figure 2, the expected return on CHOPP in the month of cross listing was -0.003, while the actual return during the same period was 0.10. This symbolises that during the month of cross listing, CHOPP experienced an abnormal return of 0.10. The average abnormal return on CHOPP throughout the OP was -0.001 while the average actual return on CHOPP over the same period was -1.00. This suggests that on average, CHOPP had lower returns than what was expected. In Figure 3, the price of CHOPP in the month of cross listing was BWP 445.00. This was a 10.1 per cent increase from the price of BWP 404.00 registered a month before the event. In addition, the price of CHOPP and the value of DCIBT had a strong and positive correlation of 85.4 per cent during the OP.

The financial ratios for Choppies Enterprises Ltd. that cover the years ended June 2014, June 2015 and June 2016 are presented in Table 7.

Table 7 Financial Ratio Analysis of Choppies Enterprises Ltd. for 2014, 2015 and 2016

Financial Ratio	Before Cross Listing	Year of Cross Listing	After Cross Listing
	2014	2015	2016
Profitability Ratios			
Operating Margin	22%	22%	20%
Net Profit Margin	4%	3%	1%
Operating Cash / Sales	6%	2%	4%
Return on Equity	15%	15%	8%
Liquidity Ratios			
Current Ratio	1.03	1.76	1.22
Quick Ratio (Acid Test)	0.39	0.94	0.45
Gearing Ratios			
Debt to Equity	18%	21%	32%
Investor Ratios			
Market Price (BWP)	420.00	481.00	400.00
Dividend Yield (BWP)	0.03	0.03	0.02
Earnings per Share (BWP)	0.15	0.15	0.08
*Price to Earnings Ratio (BWP)**	2783.73	3149.87	4924.94

*The price of the share is taken as at the year ended June 2014, June 2015 and June 2016, respectively as these periods coincide with the end of year financial statements used in the study.

Source: Authors' calculations based on data gathered from www.investing.com and from company financial statements.

From Table 7, the profitability ratios of Choppies Enterprises Ltd. in the three-year period under review generally reflect a low level of profitability for the company. The net profit margin declined from 4 per cent in 2014 to 3 per cent in 2015 before declining further to 1 per cent a year after. On the same token, the company's operating cash to sales ratio declined from 0.06 to 0.02. This means that the company went from being able to convert sales into cash 6 per cent of the time to only being able to do this 2 per cent of the time. The firm's operating margin and return on equity during the year of cross listing remained the same at 22 per cent and 15 per cent, respectively before each of them declined in 2016.

When the liquidity ratios are considered, the current ratio and the acid test increased during the year of cross listing and were at their highest levels during this time relative to the other two years. The current ratio was greater than 1 in the year of cross listing. The implication is

that, in 2015, Choppies Enterprises Ltd. had more short term assets than short term liabilities. Therefore, the company was sufficiently able to pay off its short term obligations with cash in hand and other short term assets. These results are consistent with the liquidity theory (Dodd 2011; Onyuma et al., 2012; Berg, 2012 and Dodd, 2013) and show that cross listed firms attract greater liquidity since their stock trades at lower costs, high volatility and increased trade volumes. On the other hand, the Acid test was less than 1 in the year of cross listing. Therefore, for the firm to have met its current liabilities during that period, it would have had to sell off its inventories. Although high levels of firm liquidity can be interpreted as a good thing, it can also be counterproductive, especially if it is viewed in light of the profitability ratios discussed above. A high liquidity ratio against a low profitability ratio could be critiqued to imply that a firm is not using its cash in hand productively to expand the business, improve equipment and thus create value for its shareholders (Onyuma *et al.*, 2012).

The debt to equity ratio was used to measure the effects of cross listing on the company's gearing. Choppies Enterprises Ltd.'s debt to equity ratio increased from 18 per cent to 21 per cent in the year of cross listing. This shows that around 79 per cent of the company's capital structure was equity in 2015, relative to 82 per cent in the previous year. In addition, in the year after cross listing, the company's debt to equity ratio increased from 21 per cent to 32 per cent. However, even in this case, the level of equity continued to outweigh the debt level in the company's capital structure.

When the investor ratios are considered, Choppies Enterprises Ltd.'s dividend yield and earnings per share remained unchanged at 0.03 and 0.15, respectively in the year of cross listing relative to their values a year before. Conversely, a year after the cross listing, the company's dividend yield and earnings per share dropped to 0.02 and 0.08, respectively. This was on the back of a lower profits after tax (BWP104 million in 2016, relative to BWP197 million in 2015), lower dividends per share (BWP8.48 in 2016, relative to BWP15.70 in 2015) and lower market price of the share (BWP400.00 in 2016, relative to BWP481.00 in 2015). Despite the lack lustre performance of the dividend yield and the earnings per share in the year of cross listing, the price per earnings ratio increased from BWP2783.73 in 2015 to BWP3149.87 in 2016 and to BWP4924.94 in 2017. This result indicates that the market had increased confidence in the firm and its healthy future profit projections. For this reason, investors were willing to pay more

(a premium) for Choppies Enterprises Ltd. stock in the year of cross listing and in the year after the event based on this metric.

5.2 Go Life International Ltd.

Table 8 provides a summarised version of the results of the unit root tests, residual diagnostics, model specification tests and model stability tests with respect to the components of the RAR for Go Life International Ltd.

Table 8 Results of unit root tests and diagnostics tests.

Unit Root Tests		Residual Diagnostic Tests		Model Specification Error Test		Model Stability Tests	
Type of Test	*Results of Test*	*Type of Test*	*Results of Test*	*Type of Test*	*Results of Test*	*Type of Test*	*Results of Test*
ADF	Variables are stationary at levels	***Jarque-Bera test for normality***	Residuals are normally distributed	***Ramsey RESET test***	Model is well specified	***CUSUM***	Model is stable
PP	Variables are stationary at levels	***Breusch-Godfrey test for autocorrelation***	Residuals are not auto correlated			***CUSUMQ***	Model is stable
		Breusch-Pagan-Godfrey test for heteroscedasticity	Residuals are homoscedastic				

*A detailed presentation of each test is not included in this paper but it can be made available upon request.

Source Author

Table 8 indicates that the ADF and PP unit root tests reflect that the logarithmic returns of the SEMDEX and GOLI are both stationary at levels. In addition, the Jarque-Bera test for normality, the Breusch-Godfrey test for autocorrelation and the Breusch-Pagan-Godfrey test for heteroscedasticity confirm that the model residuals are white noise. The Ramsey RESET test for model specification coupled with the CUSUM and CUSUMQ stability tests respectively indicate that no misspecification was identified in the model and the model is stable. Therefore, the model's data generation process can be trusted.

Table 9 presents the abnormal returns for GOLI as calculated from the MAR, MKAR and RAR models during the OP, October 2016 to April 2017. For the duration of the EP, the mean return

is -0.04 while the measure of volatility or the systematic risk of the stock, β is -2.76. This shows that the security had less volatiliy relative to the market. Last, the standard error is calculated as 0.10. It is low and this signals that the sample mean adequately represents the population mean.

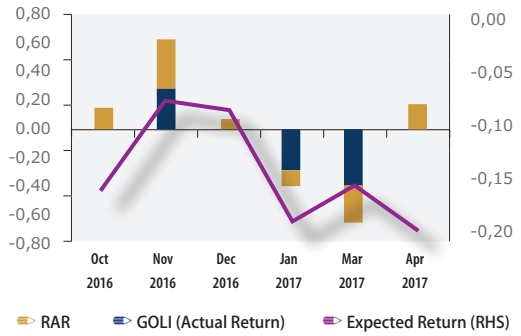
Table 9 Abnormal Returns for GOLI during the OP

Month	MAR	MKAR	RAR	t stat*	Decision*
Oct 2016	0.04	-0.03	0.15	1.49	insignificant
Nov 2016	0.32	0.29	0.36	3.55	significant
Dec 2016	0.04	0.00	0.08	0.81	insignificant
Jan 2017	-0.25	-0.33	-0.11	-1.04	insignificant
Mar 2017	-0.37	-0.43	-0.26	-2.52	significant
Apr 2017	0.04	-0.04	0.19	1.87	insignificant
EP: June 2015 – June 2016. **OP**: October 2016 - April 2017. R_t : *-0.04* $\hat{a}$: *-0.07* β : *-2.76* SD : *0.10*					
*Parametric t-statistics and corresponding decisions on significance are calculated on the RAR only.					
Source	Author				

In the month before cross listing, October 2016, the RAR model indicates that GOLI experienced positive abnormal returns. However, these results are not statistically significant. Conversely, in the month of cross listing, November 2016, the MAR, MKAR and most importantly, the RAR, reflect positive and statistically significant abnormal returns for GOLI. The conclusion is that the market responded appropriately to the quality of information around the cross listing of Go Life International Ltd.'s shares on the JSE. In addition, the RAR abnormal returns are the highest out of the three abnormal return models at 0.36. This provides evidence that cross listing on the JSE increased the share value of Go Life International Ltd. The findings are similar to those of Serra (1999), Baker *et al.* (2002), Coffee (2002), Adelegan (2008), Onyuma *et al.* (2012) and Makanga and Gateri (2014) as they confirm the legal bonding theory, the signalling theory and the investor recognition theory. In the months following the cross listing, the RAR abnormal returns are broadly statistically insignificant. This gives credibility to the semi-strong form of the efficient market hypothesis and indicates that the market was quick to incorporate the cross listing information of GOLI in the pricing of the stock.

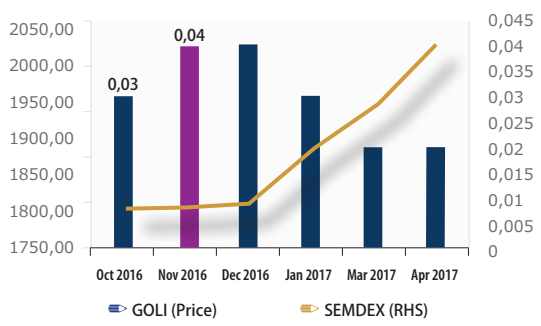
Figure 4 offers a graphical representation of the expected return, actual return and risk adjusted abnormal return of GOLI during the OP. Figure 5 presents the price of GOLI in US Dollar (USD) as well as the value of the market index, SEMDEX, during the OP.

Figure 4 GOLI Expected Return, Actual Return and RAR during OP



Source: www.investing.com and Authors' calculations

Figure 5 Price of GOLI in US Dollar (USD) and Value of SEMDEX during OP



Source: www.investing.com and Authors' calculations

In Figure 4, the expected return on GOLI was -0.07 in the month of cross listing while the actual return was 0.29 during the same period. This translated into a positive abnormal return of 0.36. The average actual return on GOLI for the duration of the OP was -0.07 while the average abnormal return during the same period was 0.07. Resultantly, on average, GOLI showed returns that were higher than what was expected. Figure 5 reflects that the price of GOLI in the month of cross listing was USD 0.04. This was a 33.3 per cent increase from the USD 0.03 registered a month before the cross listing. On the other hand, the price of GOLI and the value of SEMDEX had a strong and negative correlation of -86.4 per cent during the OP. This means that GOLI

stock is counter-cyclical to the market and can there be understood as a defensive stock[26], which will outperform the market in an economic downturn.

The financial ratios for Go Life International Ltd. that cover the years ended December 2015, December 2016 and December 2017 are presented in Table 10.

Table 10 Financial Ratio Analysis of Go Life International Ltd. for 2015, 2016 and 2017

Financial Ratio	Before Cross Listing	Year of Cross Listing	After Cross Listing
	2015	2016	2017
Profitability Ratios			
Operating Margin	-20.6%	13.1%	42.7%
Net Profit Margin	51.1%	13.9%	35.2%
Operating Cash / Sales	0.4%	0.4%	18.5%
*Return on Equity**	0.1%	0.1%	0.1%
Liquidity Ratios			
Current Ratio	3.394	3.709	3.933
Quick Ratio (Acid Test)	3.337	3.050	3.187
Gearing Ratios			
Debt to Equity Ratio	0%	0.9%	0.3%
Investor Ratios			
Market Price (USD)	0.030	0.040	0.010
*Dividend Yield (USD)***	-	-	-
Earnings per Share (USD)	0.001	0.001	0.001
*Price per Earnings Ratio (USD)****	23.71	38.58	16.30

* Information on the number of preference shares issued was not available for the period under review. Thus, the study assumed that total shares issued comprised of ordinary shares only.
** No dividends were paid to shareholders in the review period. The Company notified shareholders that it will be reinvesting profits into growth of its operations by way of acquisition, which investments are expected to increase the future prospects of the Group in the medium to long term.
** The price of the share is taken as at the year ended December 2015, December 2016 and December 2017, respectively as these periods coincide with the end of year financial statements used in the study.

Source Authors' calculations based on data gathered from www.investing.com and company financial statements.

Table 10 shows that Go Life International Ltd.'s operating margin increased from -20.6 per cent in 2015 to 13.1 per cent in 2016 before increasing further to 42.7 per cent in 2017. This is

[26] Branger *et al.* (2013) explained defensive stocks as stocks whose returns are least correlation with the economy or the business cycle.

reflective of continuous improvement in the operating efficiency of the company in the year of cross listing and in the year after. However, in 2016, the company's net margin declined to 13.9 per cent from 51.1 per cent in 2015 before increasing to 35.2 per cent in 2017. This signals that Go Life International Ltd.'s profitability was low in the year of cross listing compared to the year before and the year after the event. In 2016 and 2017, Go Life International Ltd. experienced high levels of liquidity as reflected by the respective current ratios and quick ratios that were well above 1. As a result, the company could comfortably service its current liabilities with its short term assets during this period.

Go Life International Ltd. had a debt to equity ratio of 0.09 in 2016 (up from 0.00 in the previous year) before it registered 0.03 in 2017. The results show that over 90 per cent of the company's capital structure was made up of equity in the year of cross listing and in the year after. Considering the investor ratios, the earnings per share in the year of cross listing and in the year after the event remained unchanged from the 2015 position at 0.001. Conversely, the price per earnings ratio increased from USD23.71 in 2015 to USD38.58 in 2016 before declining to USD16.30 in 2017. The market was more confident about the company's performance in the year of cross listing and investors were willing to pay more for Go Life International Ltd. stock during this time than in any other year under review.

6 CONCLUSION AND POLICY RECOMMENDATIONS

The objective of this research was to determine the effects of regional cross listing on firm value and financial performance and to draw policy lessons for Lesotho. Using event study methodology, financial ratio analysis and a regional case study of two Sub-Saharan African firms (Choppies Enterprises Ltd. and Go Life International Ltd.) that cross listed on the JSE in 2015 and 2016, respectively; the results of the study reveal that the two firms experienced increased value and liquidity during their respective periods of cross listing together with elevated levels of market confidence. These findings are consistent with the legal bonding theory, the signalling theory, the investor recognition theory and the liquidity theory. The study also provides proof of the market timing theory. Each firm's decision to cross list on the JSE was because it saw

itself as a high value firm that could bond to stricter regulatory standards. This information was internalised by the market and led to an increase in the demand for each firm's shares. The rise in share demand pushed share prices higher resulting in increased returns for shareholders in the form of elevated capital gains.

In light of the above, this study provides impetus for the expeditious facilitation of company listings on Lesotho's securities exchange; the MSM. It is therefore the recommendation of this investigation that first; the empirical findings of this study may be used by authorities to draw locally incorporated firms' attention to the potential benefits of cross listing. This should be done in conjunction with initiatives that identify and unlock any bottlenecks that act as deterrents for company listing on the MSM. The benefit is higher of levels of liquidity and trading activity. Last, locally incorporated firms are advised to strengthen the implementation of policies that promote transparency, more information disclosure and enhanced corporate governance. This will place them in an ideal position to list on the MSM (as well as on relatively much more developed exchanges) and to attract more willing investors, higher liquidity and decreased leverage for their firms. It will also mean they stand a chance to cross list on relatively more sophisticated regional securities exchanges and thus enjoy the potential benefits of such an exercise.

7 AREAS OF FURTHER RESEARCH

Future research on cross listing can investigate whether or not regional cross listing facilitates stock market development and stock market deepening. This can be explored by looking at the impact of growth in regional cross listings on stock market development and economic growth with the use of either ESM or the Latent Growth Curve Modelling (LGCM) technique. This would prove useful for purposes of informing targeted policy formulation.

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APPENDIX

Appendix 1 Profiles of Selected African Stock Exchanges

Name of Stock Exchange	Profile of Stock Exchange
Botswana Stock Exchange (BSE)	The BSE is a statutory body that was created and operates under the Botswana Stock Exchange Act Number 11 of 1994, which provided for the establishment of an independent exchange and made provisions for the running of the exchange. However, the BSE is in the process of Demutualization. The BSE Transition Act commenced on 1st December 2015 paving way for the Demutualization of BSE into a public company to be registered in terms of the Companies Act. The Demutualization of the BSE is expected to strengthen corporate governance practices and enhance competitiveness of the exchange in line with other exchanges around the world that have undergone significant changes and transformation from being member-controlled to demutualized entities.
Namibia Stock Exchange (NSX)	The NSX is an association of members, formed in 1992 and licensed annually by the "Namibian Financial Institutions Supervisory Authority (NAMFISA)", in terms of the Stock Exchanges Control Act of 1985 and acts as a self-regulating organisation. As most of the services are outsourced, the NSX operates with a small staff complement. Further, due to the small Namibian economy and the legacy development by South Africa, the majority of listed companies comprise South African holding companies of Namibian branches or subsidiaries.
Mozambique Stock Exchange (BVM)	In 1997, the Government of Mozambique, through the Ministry of Planning and Finance (currently the Ministry of Economy and Finance), created the "Installing Commission of the Mozambique Stock Exchange", whose mission was to promote the organization of the capital market in Mozambique, specifically the creation of the necessary institutional and legal structures and the establishment of a stock exchange. As a result of the Installing Commission's activities, the Council of Ministers approved the legal instruments for the operation of the Mozambique Stock Exchange, particularly Decrees 48/98 and 49/98, both dated September 22, regarding the regulation of the Securities Market as well as the creation of the Stock Exchange and its internal regulation. The Stock Exchange is a public institute created in 1998, endowed with administrative, financial and patrimonial autonomy. The Stock Exchange is responsible for the creation and maintenance of premises and systems equipped with the necessary means for the operation of a free and open market directed to the purchase and sale of securities. The Exchange also provides the registration, clearing, settlement and disclosure of information on transactions.
Source	Author

Appendix 1 Profiles of Selected African Stock Exchanges (continued)

Name of Stock Exchange	Profile of Stock Exchange
Stock Exchange of Mauritius (SEM)	The SEM was incorporated on March 30, 1989 under the Stock Exchange Act 1988, as a private limited company responsible for the operation and promotion of an efficient and regulated securities market in Mauritius. With the coming into force of the Securities Act 2005 in 2007, the SEM has converted to public company status and operates a securities exchange licensed and regulated by the Financial Services Commission (FSC) of Mauritius.
Malawi Stock Exchange (MSE)	The MSE has been in existence since 1994 but started equity trading in November 1996 when it first listed National Insurance Company Limited (NICO). Prior to the listing of the first company, the major activities that were being undertaken were the provision of a facility for secondary market trading in Government of Malawi securities namely; Treasury Notes and Local Registered Stock. The Stock Exchange is licensed under the Financial Services Act 2010 and operates under the Securities Act 2010 and the Companies Act 2013.
Zimbabwe Stock Exchange (ZSE)	The first stock exchange in Zimbabwe opened its doors shortly after the arrival of the Pioneer Column in Bulawayo 1896. It was however only operative for about 6 years. Other stock exchanges were established in Gwelo (Gweru) and Umtali (Mutare). The latter, also founded in 1896, thrived on the success of local mining, but with the realization that deposits in the area were not extensive, activity declined and it closed in 1924. After World War 11 a new exchange was founded in Bulawayo and dealing started in 1946. Zimbabwe has a fully developed Capital markets with an active and equally developed institutional base. As a result of a long tradition of investing on the Market, an entire industry has been created. Zimbabwe has a Pension Fund industry, an insurance industry, and local asset management industry supported by a number of registered stockbroking firms.
Johannesburg Stock Exchange (JSE)	The Johannesburg Stock Exchange (JSE) was formed in 1887. It is Africa's premier exchange, it connects investors and issuers to new opportunities through South Africa's developed financial market. With more than 129 years of trusted heritage, the JSE is recognised globally for its regulatory standard and is one of the world's 20 largest securities exchanges by market capitalization. The JSE is a service exchange providing secure capital and debt raising as well as connecting buyers and sellers across a diverse range of securities which includes equities and derivatives (equities, interest rate, currency and commodities). As part its holistic offering, it provides electronic trading, clearing and settlement in its equities and derivatives markets enabling transparency in all that it does and guaranteed settlement in all markets.

Source Author

Appendix 2 Market fundamentals for Selected Sub-Saharan African Stock Exchanges in 2012

Fundamentals	Botswana Stock Exchange	Namibia Stock Exchange	Malawi Stock Exchange	Zimbabwe Stock Exchange	Mozambique Stock Exchange	Stock Exchange of Mauritius	Johannesburg Stock Exchange
No. of Listed Firms	30	33	14	79	3	88	400
Local firms	21	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Foreign firms	9	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Market Cap (US$)	53bn	144.1bn	10.5bn	3.96bn	1.02bn	7.1bn	998.3bn
Domestic Market Cap as % of GDP	23.84	1184.00	19.95	42.83	0.01	63.66	252
Total value of stock traded (US$)	135.5mn	494.5mn	16.1mn	448.2mn	18.7mn	352.8mn	408.6bn
Total Volume Traded	465.7mn	110.9mn	667.2mn	3.5bn	18.7mn	304.5mn	61.8bn
Turnover Ratio (%)*	0.26	0.34	0.15	11.31	1.83	4.97	40.93
Automated Trading system	Yes	Yes	No**	No**	Yes	Yes	Yes

* Turnover Ratio (%) = Total value of stock traded/Market Capitalisation
** Manual Trading System

Source: ASEA Yearbook (2013a)

Appendix 3 Top 5 most active sectors in Selected Sub-Saharan African Stock Exchanges in 2011 – 2012

Name of Stock Exchange	Botswana Stock Exchange	Namibia Stock Exchange	Malawi Stock Exchange	Zimbabwe Stock Exchange	Mozambique Stock Exchange	Stock Exchange of Mauritius	Johannesburg Stock Exchange
Name of Sector	Financial services and insurance	Financial	Information Technology	Beverages	Brewery	Banks, Insurance and other finance	Mining
	Banking	Basic materials	Real Estate and Property	Technology	Energy	Investments	Banks
	Retail and wholesaling	Consumer goods	Financial Sector	Retail	Banks	Not Available	Life Insurance
	Mining and materials	Consumer services	Investment Vehicle	Insurance	Telecommunications	Leisure & Hotels	Real Estate Investment & Services
	Property and property trust	Industrial	Manufacturing	Property	Construction and Materials	Commerce	Financial Services

Source: ASEA Yearbook (2013a)

Appendix 4 Detailed Explanation of Theories that Underscore Cross Listing Decisions

Theory	Detailed Explanation
The legal bonding theory	Firms that choose to cross list their shares on foreign exchanges are likely to face more scrutiny from investors, auditors and from the host regulator. For instance, in cases where companies are incorporated in a jurisdiction with less efficient legal systems and poor shareholder protection, cross listing opens up the company to commit itself willingly to higher standards of corporate governance and reporting. This implies that cross listing on a foreign market acts as a bonding mechanism for the firm binds itself to an increased level of disclosure, scrutiny and better corporate governance practices. The benefits are twofold: (i) firms will be able to attract investors who would otherwise be reluctant to invest and (ii) a credible and binding commitment by the share issuer to protect the interests of minority shareholders is developed and there is less likelihood of diversion of a firm's cash flow to managers and controlling shareholders.
The signalling theory	This theory is closely linked to the legal bonding theory in as far as the cross listing effects on shareholders' wealth. Signalling theory espouses that voluntary bonding to higher levels of disclosure, scrutiny and better corporate governance by a firm provides a way for the firm's managers to communicate information to the market about the firm's quality and future prospects. The choice to cross list on an exchange with strict disclosure requirements therefore signals superior operating performance in the future and is met with a strongly positive market reaction.
The capital market segmentation theory	Cross listing is a way to reduce market segmentation[27] and as a result reduce a stock's systematic risk. This is because the capital market segmentation theory postulates that (ceteris paribus) higher gains (in terms of reduced cost of capital) should be realised when firms decide to list on exchanges where asset returns are least correlated with the home market.
The information asymmetry theory	Information asymmetry affects asset prices. The information asymmetry theory assets that market segmentation that is due to lack of access to information can be reduced by cross listing. The result is an increase in media coverage coupled with increased analysts follow ups. This provides investors with more and better information about a company and its shares. More and better information about a company and its stock can also translate into a more efficient price discovery for the stock. In addition, the benefits include a larger investor base and higher demand for the stock considering lower information gathering costs.
Source	Author

[27] Describes how a country's capital market can be separate from the capital markets of other countries. An often related term is barriers to capital flow. Under market segmentation, there are barriers to investment such as legal restrictions, discriminatory taxation, and lack of information. These things restrict the ability of foreign investors from purchasing domestic stocks (Serra, 1999 and Hargis, 2000).

Appendix 4 Detailed Explanation of Theories that Underscore Cross Listing Decisions (continued)

Theory	Detailed Explanation
The liquidity theory	Cross listing allows companies to trade in multiple time zones and in multiple currencies as well as to have increased pick-up in trading volumes in both the foreign and home stock market. This suggests that cross listing could resulting in order flow migration[28] leading to increased competition for order flows for the cross listed stocks between the home market and the host market. As a consequence, the market with the lowest trading costs will attract the most order flows. The benefit is increased liquidity for the issuing company since it is able to raise capital from foreign and domestic investors. In addition, the increased participation improves domestic market liquidity by reducing the sensitivity of prices to order flow in the domestic market. This can be seen in the narrowing of the bid-ask spread. Increased trade volumes mean that the stock can easily be sold as and when the investor wants and at any given time. This is because there are sufficient buyers and sellers with the same economic interest in the stock.
The investor recognition theory	It can be argued that the chief reason why domestic firms and stock exchanges choose to cross list on foreign exchanges is to increase their visibility. On the one hand, increased visibility of stock exchanges has the potential to boost local stock market marketing efforts through the broadening of product identification among investors and consumers in the host country. On the other hand, increased firm visibility could lead to enhanced firm value through its effect on the firm's information environment. When a company cross lists their security issues, this acts as a tool to signal their transparency and private information as well as commitment to deliver a positive signal of their value to investors. Companies can use cross listing on markets with strict disclosure requirements to indicate their quality to foreign investors and to supply better information to potential suppliers and customers. In addition, greater information transparency across markets and competing market makers in the foreign market can improve the domestic market liquidity and analyst forecasts about cross listed shares. Analyst forecasts are more accurate for firms that disclose more. Firms with accurate forecasts enjoy lower implied cost of capital. That is to say, the more investors are able to accurately assess the cross-listed firm's prospects, the more the firm's cost of capital is reduced.
Source	Author

[28] Order-flow migration refers to the transfer of (some) trading activity in the cross-listed stocks from the local stock market to the host exchange. Order-flow migration describes the situation where some trade orders that would have been conducted previously in the domestic stock market will now be shifted to the international exchange, following cross listing (Domowitz et al. 1998 and. Jayakumar, 2002).

Appendix 4 Detailed Explanation of Theories that Underscore Cross Listing Decisions (continued)

Theory	Detailed Explanation
The proximity preference theory	Corporate financing decisions such as portfolio investment decisions are often bias in favour of domestic assets. In this context, geographical, economic, cultural and industrial proximity measures are significant deciding factors of the corporate decision to cross list. Evidence suggests that wealth benefits for shareholders are much higher for cross listings on foreign markets that are already familiar with the domestic company's products and that are relatively geographically close (measure by the distance between the capitals).
The market timing theory	The decision by a corporate manager to cross list a company's shares is a timed one. The timing of the decision tends to coincide with a strong stock performance on the home market as well as a "hot" market period in the host market. The latter is done to take advantage of soaring market valuations.
The business strategy theory	The decision to cross list is a function of a company's global corporate strategy. In this case, the cross listing destination is a market with listings of the firm's market peers. The decision to list in such a market is a way for the firm to strengthen their competitive position in their industry.
Source	Author

Appendix 5 Profiles of Go Life International Ltd. and Choppies Enterprises Ltd.

Name of Company	Company Profile
Go Life International Ltd.	Go Life International PCC is created with the express purpose of establishing a distribution vehicle for Go Life Health Products Ltd. to structures established to market those products in countries other than South Africa, on the global stage. The products that are distributed by the company address a wide variety of conditions briefly summarised as follows: • Skin conditions, muscular fatigue and-pain. • The re-introduction of Magnesium into the bodies of chronically ill people. • The absorption of L-Carnitine at cellular level (releases energy at cellular level and greatly assists with the combating of many debilitating diseases and ailments). • A very effective laxative. • A combination of natural ingredients designed to assist increased sexual sensations.
Choppies Enterprises Ltd.	Choppies Enterprises Ltd., an investment holding company, operates as a grocery retailer in Botswana, South Africa, and Zimbabwe. The company operates superstores, hyper stores, and value stores under the Choppies brand name. Its stores offer fruits and vegetables, bakery, butchery, and takeaway products. In addition, the company distributes meat.
Source	Author

Appendix 6 List of Financial Ratios Used in the Study

Type of Financial Ratio	Definition of Financial Ratio	Implication of Financial Ratio Result	Formulaic Depiction
Profitability Ratios			
Operating Margin (OM)	*The OM measures the operating income of a company as a percentage of sales. It is used to measure the company's operating efficiency*	*From period to period, a higher OM means high operating efficiency for the company.*	*Operating Income / Sales*
Net Profit Margin (NPM)	*The NPM measures the company's net income as a percentage of sales. It is used to measure the profitability of a company*	*From period to period, a higher NPM implies higher profitability.*	*Net income / Sales*
Operating Cash to Sales (OCS)	*The OCS measures the cash a company has generated from its operations in relation to its sales made*	*From period to period, a higher OCS suggests greater ability by the company to turn its sales into cash.*	*Operating Cash / Sales*
Return on Equity (RoE)	*The RoE measures the income / return that a company has earned from / on the equity capital in the business. It shows how much profit each 1 unit currency of common stock generates for stock holders.*	*From period to period, a higher RoE implies a higher return earned on the company's equity.*	*Operating Cash / Sales*
Liquidity ratios			
Current Ratio (CR)[29].	The CR measures a company's ability to satisfy its current liabilities with its current assets	A higher CR (greater than 1) means that a company is more capable of paying its short-term obligations (current liabilities) since it has more assets than liabilities	Current assets / Current liabilities
Quick Ratio (QR) – Acid Test	The QR is similar to the CR in that it measures a company's ability to satisfy its current liabilities with its current assets. The only difference is that it nets inventories from current assets since inventories are the least liquid form of current assets.	A higher QR means that a company is more capable of paying its short-term obligations (current liabilities) since it has more assets than liabilities	(Current assets – Inventories) / Current liabilities
Gearing ratios			
Debt-to-Equity Ratio (D/E ratio).	The D/E ratio measures a company's debt financing relative its equity financing	A high D/E ratio means that the company's growth has been financed chiefly by debt while a low D/E ratio means that the company's greatest financing has come from equity.	Total Long Term Debt / Total Shareholder Equity
Asset to Equity Ratio	The Asset to Equity Ratio indicates the relationship between total assets of the firm to the owner's equity.	There is no ideal asset/ equity ratio. However, the ratio can be used to compare similar businesses. A high asset to equity ratio could be an indication that the return on borrowed capital exceeds the cost of that capital.	Total Assets / Total Equity
Source	Author		

[29] A CR that ranges from 1 (1:1) to 2 (2:1) is considered fair. This is because a CR that is too high could mean that a company is not using its current assets efficiently (Onyuma *et al.*, 2012).

Appendix 6 List of Financial Ratios Used in the Study (continued)

Type of Financial Ratio	Definition of Financial Ratio	Implication of Financial Ratio Result	Formulaic Depiction
Investor Ratios			
Market Price of Share (MPS)	*This MPS measures the market price of the share*	*An increase in the market price of the share means an increase in the share price and therefore market capitalization (valuation) of the company.*	
Dividend Yield (DY)	*The DY measures the dividend declared as a percentage of the market price of a share.*	*From period to period, the higher the DY, the higher the return that an investor will receive on each unit currency they have invested.*	*Dividend per Share / Market Price*
Earnings per Share (EPS)	*The EPS reflects the earnings attributable to each share of common stock.*	*The higher the EPS, the more valuable are the common stocks of the firm.*	*Net income / Ordinary Shares Outstanding*
Price Earnings Ratio (PER)	*The PER relates share price to the EPS. It values the company by measuring its current share price relative to its EPS. It shows the number of times the earnings are covered by the share market price. It also indicates how much an investor would have to invest into the company in order to get one-unit currency of that company's earnings.*	*The higher the PER, the more times the company earnings are covered by the share market price.*	*Market price per share / earning per share*
Source	Author		