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An Empirical Study of the Country Risk of Botswana Using the Beta Approach

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ABSTRACT

As we live in global village where markets are highly integrated, international investors have capacity and are willing to invest beyond their borders. This has led to voluminous increase in the flow of multinational investments in the two previous decades. Country risk exposure, assessment and measurement are a cause for concerned for all the institutions that are engaged in multinational trade and finance. The main objective of the study is to measure and model country risk for Botswana. A mixed method with concurrent research design was employed. Personal Interviews were the main instrument for collection of primary data. Interviewees were selected through snowball sampling technique. Secondary data was collected from the Botswana Stock Exchange (BSE), Ministry of Finance, Central bank and Central Statistical Office. An autoregressive distributed lag technique was employed on annual data for the period 1994 to 2018 as it suits well small sample size. The major findings of the study revealed that current account and GDP deflator positively influence country risk of Botswana whilst the preceding year beta and short-term interest rates had a negative effect in the long run. The study concluded that the major long run determinants of country risk are current account and GDP deflator. The study also concluded that the main short run driver of country risk for Botswana is current account balance. Effective policies need to be implemented by the authorities to manage persistent current account deficits, external debts and political risk; hence, country risk would be managed.

Keywords: Country risk, beta approach, autoregressive distributed lag, snowball sampling, Botswana.

1.0 Introduction

Country risk assessment and the interconnection between country risk and macroeconomic variables has been a major subject of engagement within the multinational trade and finance circus. All institutions that are involved in managing global investment portfolios are vulnerable to country risk¬. Vij (2005) defined country risk is "the risk that economic, social and political events in a foreign country would adversely affect an institution's financial interest".

Citing Bouchet, Clark and Groslambert (2003), San-Martin-Albizuri and Rodriguez-Castellanos (2015), and San-Martin-Albizuri and Rodriguez-Castellanos (2018), country risk was mainly originated by a various sequence of crises: political crises in the 1960s and 1970s, oil crisis and collapse of the fixed exchange rate system in the 1970s, financial debt crises in the 1980s, financial crises in the 1990s and subprime lending of 2007. These entire crises renewed the interest of different stakeholders in the concept of country risk. The sovereign and private debt crisis in the Euro area and non-Euro member countries fuelled an on-going debate among rating agencies, policymakers (including public debt managers, bank regulators, fiscal authorities and central bankers) and academics on how to measure or estimate country risk (Blommestein and Turner, 2012).

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In addition, modern contributors to this debate advocate for a set of indicators that they think capture country risk, these criteria range from macroeconomic to financial formulas through to credit ratings (Blommestein, Guzzo and Holland, 2010) but none has been universally accepted (Blommestein and Turner, 2012).

A number of studies have used different econometric methodologies to analyses country risk. Basu, Deepthi and Reddy (2011) considered ten macroeconomic indicators for the period 1980 to 2009 in country risk analysis of Indian economy. The macroeconomic indicators include GDP per capita, GDP deflator, public debt, current account, interest rates, foreign exchange reserves, exchange rate (against the USD), FDI inflows, unemployment and political risk. All the variables were subjected to the ARIMA smoothed time series. The findings of the study revealed that major drivers of country risk were liberalization, dot-com bubble burst and subprime crisis. They further postulate that FDI inflows, exchange rate, unemployment rate and short term interest rates are the major drivers of country risk. They also found that exchange rate, FDI inflows, unemployment rate and interest rates were negatively related to country risk while inclusion of political risk in the model did not influence country risk because it had already been embedded in interest rates and FDI inflows variables. They used the index for political stability and absence of violence index from world bank governance indicators as a proxy for country risk. This index is very subjective as it many qualitative factors that considered when calculating it.

Vij (2005) used seven macroeconomic variables that include gross national income per capita, gross capital formation, net foreign debt/exports ratio, reserves to import ratio, current account balance on gross national income, exports growth rate and political instability indicator to explore the degree to which they can assist in estimation of country risk. The logistic multiple regression analysis technique was used to estimate the model. Vij (supra) found that political risk is the most significant variable affecting country risk and exerted greatest influence on risk rankings of all the countries combined together. This finding is in line with Asiri and Buhail (2014) who found that political risk determines most the country risk ratings and Erb, Harvey and Viskanta (1996a) who established that economic and financial risk are most common in the developed markets while political risk explains asset returns in emerging equities markets. Using the ARIMA technique, Andrade and Teles (2004) adopted country beta model approach to study the country risk of Brazil from 1991 to 2002 and found that manipulation of the nominal interest rate in essential in reducing country risk. Vij (supra) used country credit worthiness ratings from two major international rating services (the Institutional Investor and the Euromoney) as proxy for country risk. However, these ratings are highly subjective as they do not always capture the actual situation in a country. Moreover, country risk ratings always measure the defaults risks overlooking the equity risk associated with country's equity market returns and other risks that drive equity markets.

Wdowinski (2004) used real factors that include income, productivity, trade balance, budget deficit, and monetary actors that include the zloty exchange rate and interest rate to estimate the country risk model for Poland for the period 1996-2002. The study concluded that the stock market in Poland has moderately smaller betas than the world markets and this is consistent with Harvey (1995) and, Erb, Harvey and Viskanta (1996b) who found that developed markets have higher betas than emerging markets. It was also found that monetary factors influence most the country risk of Poland. In the case of beta risk of the 20 biggest companies, both monetary and real factors were found to influence the beta risk but real factors were more influential in market for biggest companies (index WIG20) than for all companies (index WIG) where there is active short-term speculation. The study also used the difference between local market index return and world market returns as a proxy for country risk. Its major weakness is that it produces large standard error when computing country risk and this renders the method worthless. The study also used the difference between local market index return and world market returns as a proxy for country risk. Its major weakness is that it produces large standard error when computing country risk and this renders the method worthless.

Despites different proxies, variables and methodologies used to estimate country risk, none were recommended by academics and experts in country risk analysis as entire acceptable. So what is the best proxy and methodology for measuring country of Botswana? The main aim of the current study is to measure and model the country risk of Botswana using the beta approach. The paper is subdivided as follows: Section 2 provides a brief overview of the economy of Botswana. Section 3 presents the conceptual framework of the study. Section 4 outlines the econometric methodology that was adopted. Section 5 analyses, interprets and discusses the findings of the study. Finally, Section 6 presents the conclusions of the study.

2.0 Background of the possible financial, economic and political variables driving the country risk for Botswana

Botswana is among the countries with highest income earning GDP per capita of $3000, notwithstanding its small population (Muyambiri and Odhiambo, 2017). There are so many countries that have invested in Botswana and these include South Africa, Mauritius, Zimbabwe, Sri Lanka and India, with South Africa accounting 60% of Botswana's FDI. Diamond exports are the main driver of economic growth of Botswana. Until late 2008, the country of Botswana has witnessed an extensive positive development of its economy and standards of living, and has developed into middle class (Honde, 2018).

There is not much political instability and violence in Botswana as reinforced by the higher aggregate values on worldwide governance indicator on political stability and absence of violence. When it comes to political stability and absence of violence, Botswana was ranked number one in Africa because it had a very strong legislative regime to fight corruption (Transparency International, 2011). It is also a stable democratic country which for forty years experienced the highest economic growth rates in the world (Leith, 1997). Botswana is among the few countries which are politically stable and least corrupt in Africa (GAN Business Anti-corruption report, 2016; World Bank, 2019). Figure 1 overleaf shows the international ranking of Botswana in terms of corruption.

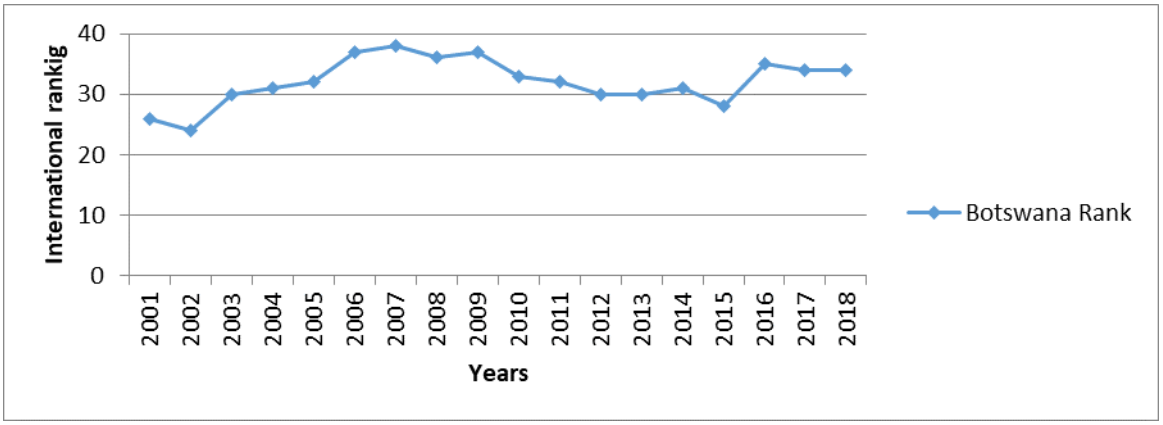


Figure 01: International ranking of Botswana in terms of corruption

Source: Transparency International (2019)

NB: rank, lowest="Very Clean" while highest = “very corrupt”

Figure 01 indicates that Botswana is perceived as a least corrupt country as shown by the low aggregate values in terms of corruption.

Botswana FDI inflows have been increasing except during the period 2007-2008, when the global financial crisis negatively affected them (United Nations Conference on Trade and Development, 2013a; Mahembe and Odhiambo, 2013). The increase in FDI inflows was mainly attributed to prudent economic management and good government. Inflation rates in Botswana are fairly lower than their neighbours as they managed to contain them to 4.1% in December 2013 (Central Statistical Office Botswana, 2014; Kariuki, Abraha and Obuseng, 2014).

Unemployment rates are extremely high in Botswana. In 2010, unemployment rates stood at 17.5% in Botswana, vis-a- viz, the countries’ constant economic growth rate of at least 3% annually. This may imply that countries’ public resources are concentrated among very few individuals (Africa Development Bank, 2015; Organisation for Economic Co-operation Development, 2015 and United Nations Development Programme, 2015). Unemployment rate rose to around 18% in 2018 against the background of heavy investment in education (World Bank, 2019). Through proper fiscal discipline and effective management, Botswana’s economic performance continued to improve, with its GDP growth rate (in real terms) projected to rise from 4.2% in 2012 to 5.4% in 2013. The major driver of the growth was the mining sector which improved significantly to 6.3% in 2013 (Kariuki, Abraha and Obuseng, 2014; Harvey and Lewis, 1990). Moreover, Botswana’s per capita GNP is way above the Southern African Development Community (SADC) target and is among the few countries in Africa to be ranked as a middle-income state (Maipose, 2008 citing Duncan et al., 1995).

The Southern African Development Community (SADC) region faces an unusual heavy debt burden in comparison with other low income countries. Botswana’s public debt was above 3% but less than the SADC target of 60% (International Monetary Fund, 2018). The government of Botswana continuously devises and implements cautious debt management policy that limits public domestic and foreign debt each to a level which does not exceed 20% of GDP (Africa Development Bank, 2015; Organisation for Economic Co-operation Development, 2015 and United Nations Development Programme, 2015; Kariuki, Abraha and Obuseng, 2014). All these ratios are way above the recommended 3% of GDP indicating that these countries may suffer from debt trap in the long run. Persistent current account deficits continue to haunt this country (World Bank, 2019). The Botswana government managed to meet the SADC target of a current account deficit of less than 9% in 2011 as it reduced its lower propensity to import (United Nations Development Programme, 2014 and 2015; Southern African Development Community, 2014). The medium-outlook of the economy of Botswana is favourable due to increasing diamond exports and comfortable buffers but there is need for quick implementation of fiscal and structural reforms (International Monetary Fund report on Botswana, 2018).

Against this background, this study measures and models the country betas of the Botswana economy.The major contribution of this study is that of estimating the country beta(risk), which is a time varying parameter computed through the covariance of the local index returns and world market index returns relative to the variance of the world markets index returns, used as an acceptable proxy for county risk. Unlike

other crude proxies for country risk(for example political instability and absence of violence index from the World Bank development indicators, country risk ratings, bond spreads and annual debt 'rescheduling events'), country beta is very objective as it reflects the actual risk inherent in Botswana equity market.

3.0 Study conceptual frameworks

The conceptual framework for the current study is shown in Figure 02 overleaf.

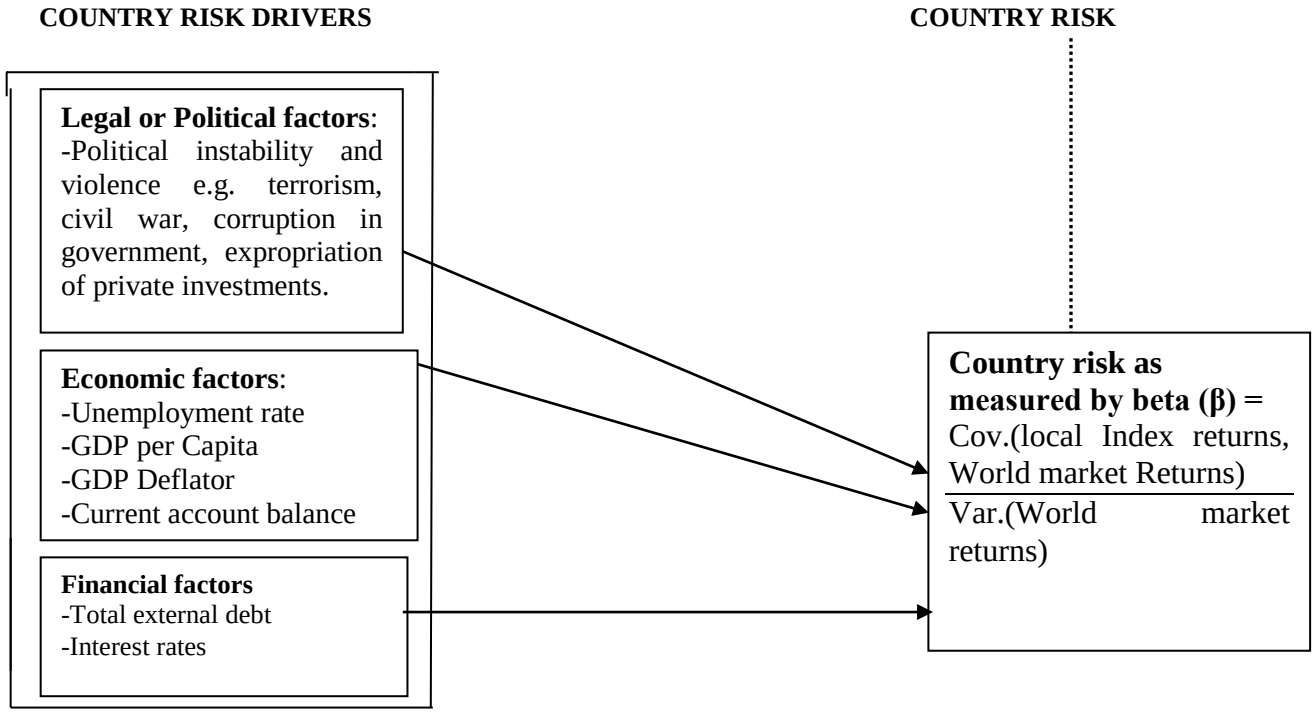


Figure 02: A depiction of the current study's conceptual framework

Source: Adopted from Muwando,Gumbo and Tembo (2022) citing Erb, Harvey and Viskanta (1996a)

In Figure 02, country risk as measured by beta is a function of economic, financial and political variables.

The paper is subdivided as follows: Section 3 provides a brief overview of the economy of Botswana. Section 4 outlines the econometric methodology that was adopted. Section 5 analyses, interprets and discusses the findings of the study. Finally, Section 6 presents the conclusions of the study.

4.0 Data and methodology

The study employed mixed methods with concurrent research design in order to improve the accuracy of their judgments by collecting different kinds of data on the same phenomenon of country risk analysis. On quantitative approach, the study employed Autoregressive Distributed Lagged (ARDL)-Bounds test procedure on annual data collected from 1994 to 2018 to determine the determinants of country risk for Botswana. This approach was adopted because all the variables were stationary at level and at the first difference; moreover, it accommodates small sample size. This approach also allows the researcher to integrate multiple independent variables in the model to estimate the dependent variable. To complement the quantitative research design, exploratory design through the conducting personal interviews was employed by the researcher to gain deeper comprehension of the main determinants of country risk, to find out the respondents' view on the impact of political, economic and financial variables on country risk of Botswana.

The drivers of country risk are categorized into economic, financial variables and political variables (Hoti, 2005). Political variables are composed of legal factors, political instability; economic factors include per capita GDP, GDP deflator, current account balance, and unemployment rate while financial variables are composed of external debt balance, short term interest rates.

4.1 Model Specification

According to Vij (2005), the country risk model can be expressed as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \cdots + \beta_n X_{ni} + \varepsilon_i \qquad \textbf{Eq. (01)}$$

The notation X_{ni} indicates the values of the nth independent variable for the case i. The beta terms are unknown parameters and the εi terms are independent random variables that are normally distributed with mean zero and constant variance, δ^2.

Erb, Harvey and Viskanta (1996a) express country risk as:

$$\boldsymbol{CR_{it} = F(EC_{it},\ PO_{it}\ ,FI_{it})} \qquad \textbf{Eq. (02)}$$

Where: EC_{it} is the economic-related risk;

PO_{it} is the political-related risk;

FI_{it} is the financial-related risk for country i in the period t.

This means that country risk in eq. (02) depends on economic related risk, political related risk and financial related risk.

In this study, the country beta model is further takes the following form:

$$\boldsymbol{CR_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \cdots + \beta_n X_{ni} + \varepsilon_i} \qquad \textbf{Eq. (03)}$$

Where: CR_i is the country risk at time t;

α is the intercept or constant;

β_i to β_n are unknown parameters;

X_{1i} to X_{ni} are country risk drivers;

ε_t terms are independent random variables that are normally distributed with mean zero and constant variance, σ^2.

According to Choong *et al.* (2003) citing Pesaran, Shin and Smith (2001), the ARDL technique is applied by modeling the long-run eq. (04) as a general vector autoregressive [VAR] model of order p in Z_t. This implies that:

$$z_t = \beta_0 + \alpha_1 t + \sum_{i=1}^{p} \emptyset_i z_{t-i} + \boldsymbol{\varepsilon_i}, \qquad t = 1,2,3,4,\dots,T \qquad \boldsymbol{Eq.(04)}$$

Where β_0 represents [k + 1] – a vector of intercept [drift];

α represents [k + 1] – a vector of trend coefficients;

$\emptyset_i$ represents model coefficients.

Pesaran, Shin & Smith (2001) further proposed the following vector error correction model [VECM] corresponding to Eq. (04)

$$\Delta z_t = \beta_0 + \alpha_1 t + \pi z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta z_{t-i} + \boldsymbol{\varepsilon_t}; \quad t = 1,2,3,4,\dots,T \qquad \boldsymbol{Eq.(05)}$$

Where $\Delta \equiv$ 1- L is the difference operator, $\beta_0 = -\pi\mu + (r + \pi)\Upsilon \ and \ \alpha_1 = -\pi\Upsilon$.

In this study, Z_t = (*CA, CAPITA, DEFLATOR, ED, PSAV, UN, WSTIR*). *Γ* is an *n x n* matrix (short run dynamics coefficients), $\pi = \alpha\beta'$ where α is an *n x 1* column vector (the matrix of loadings) denotes the speed of short run adjustment to disequilibrium and β' is an *1 x n* cointegrating row vector (the matrix of cointegrating vectors) represents the matrix of the coefficients of long run dynamics such that Y_t converge in their long run equilibrium. Finally, ε_t is an *n x 1* vector of white noise error term (Choong et al., 2003; Oteng-Abayie and Frimpong, 2006). In other words, Z_t is the vector of variables Y_t and X_t respectively; Y_t is an I(1) dependent variable denoted by CRt ; X_t (*CA, CAPITA, DEFLATOR, ED, PSAV, UN, WSTIR*) a vector matrix of I(0) and I(1).

The conditional Vector Error Correction Model (VECM) becomes:

$$\Delta y_t = \beta_0 + \alpha_1 t - \alpha(y_{t-1} - \theta x_t) + \sum_{i=1}^{p-1} \lambda_{yi} \Delta y_{t-i} + \sum_{i=0}^{q-1} C_{xi} \Delta x_{t-i} + \boldsymbol{\varepsilon_t}, \qquad \boldsymbol{Eq.(06)}$$

$$with\ the\ speed - of - adjustment\ coeffecient\ \alpha = 1 - \sum_{j=1}^{p} \Phi_i \text{ and the long-run coefficient } \theta = \frac{\sum_{j=0}^{q} \beta_j}{\alpha}$$

The determinants of country risk used in this study were derived from previous empirical studies of country risk that dealt exclusively with emerging market equity returns and from the suggestion of theoretical researches on sovereign and international borrowings (Basu, Deepthi and Reddy, 2011; Tourani-Rad, Choi and Wilson, 2006; Vij, 2005; Andrade and Teles, 2004; Wdowinski, 2004; Goldberg and Veitch, 2002; Gangemi,

Brooks and Faff, 2000; Erb, Harvey and Viskanta, 1996a). Moreover, choice of the variables was subject to data availability. The set of macroeconomic factors (independent variables) chosen and assessed had a major domestic and international influence on the Botswana economy. These include political risk, GDP deflator, per capita GDP, external debt, current account balance, short term interest rate and unemployment rate.

The procedure for the selection of various independent variables used to estimate country risk was as follows:

Pesaran and Pesaran (2009) and Pesaran, Shin and Smith (2001) advocated an ARDL bound testing technique that was employed to test the impact on country risk, as measured by annual country betas, of economic, political and financial variables and also to establish the behaviour country risk drivers in the short and long run. The major merit of an ARDL method over other techniques is that it is used in time-series data notwithstanding of their order of integration of the variables, that is whether I(0), I(1) and/or fractionally integrated (Almahmoud, 2014 citing Pesaran and Pesaran, 2009). Furthermore, the technique can also test for cointegration by the bounds testing approach and then estimate the short-run and long-run dynamics can be estimated (Almahmoud, 2014, p.89; Nkoro and Uko, 2016). It also captures the dynamic effects of both the lagged dependent variables that represent the autoregressive portion and lagged independent variables that constitute the distributed part of the model. Omission of variables and autocorrelation in the error term can eradicate when appropriate number of lags of regressor and regressand variables are factored in the model (Gujarat, 2012). The technique also works well, robust and efficiency with samples of different sizes, especially those with small sizes for instance, the present study. From eq. (06) above, the conditional VECM is expressed in the following form:

$$\Delta Betas_t = a_1 + b_1 Betas_{t-1} + b_2 CA_{t-1} + b_3 Capita_{t-1} + b_4 Deflator_{t-1} + b_5 ED_{t-1} + b_6 PSAV_{t-1} + b_7 UN_{t-1} + b_8 WSTIR_{t-1} + \sum_{i=1}^{p} a_i \Delta Betas_{t-i} + \sum_{j=1}^{q} a_j \Delta CA_{t-j} + \sum_{l=1}^{q} a_l \Delta Capita_{t-l} + \sum_{m=1}^{q} a_m \Delta Deflator_{t-m} + \sum_{n=1}^{q} a_n \Delta ED_{t-n} + \sum_{r=1}^{q} a_r \Delta PSAV_{t-r} + \sum_{s=1}^{q} a_s \Delta UN_{t-s} + \sum_{v=1}^{q} a_v \Delta WSTIR_{t-v} + e_t$$

Eq. (07)

4.2 ARDL Bounds Testing Procedure

According to Kumar (2010), the ARDL Bounds test procedure fundamentally encompasses three steps. First, equation [7] is estimated using the Ordinary Least Squares (OLS) method in order to determine the presence of long run dynamics among the selected factors by performing a joint hypothesis F-test for the lagged variables (Oteng-Abayie and Frimpong, 2006; Saungweme and Odhiambo, 2019).

This implies that the following hypothesis is to be tested is as follows:

$$H_0 : b_1 = b_2 = b_3 = b_4 = b_5 = b_6 = b_7 = b_8 = 0$$

$$H_1 : b_2 \neq b_2 \neq b_3 \neq b_4 \neq b_5 \neq b_6 \neq b_7 \neq b_8 \neq 0$$

The test which normalizes CRt is denoted by

$$F_{CRt}(CR|CA, CAPITA, DEFLATOR, ED, PSAV, UN, WSTIR)$$

According to Kumar (2010) and Pesaran, Shin and Smith (2001, p.290), two asymptotic critical values bounds provide a test for cointegration when the explanatory variables are integrated at level d, that is I(d) where $0 \leq d \leq 1$. The lower value of d assumes that the explanatory variables are stationary at level, I(0) and the upper value of d assumes that they are purely stationary at the first difference, I(1). Suppose the F-calculated is larger than the upper F-critical value, we reject the Ho and conclude that there is a long-run relationship among the series despite of the orders of integration for the time series. On the other hand, if the F-calculated is less than the lower critical value, we fail to reject the null hypothesis and conclude that there is no long-run relationship among the series. Finally, if the F-calculated lies between the lower and the upper critical values, the result cannot be concluded (Nieh and Wang, 2005; Abdul-Mumuni and Quaidoo, 2016, Ben Jebli, 2016). The critical values used in this study were extracted from Pesaran, Shin and Smith (2001) table.

Second, if cointegration exists, the conditional ARDL $(p, q^1, q^2, q^3, q^4, q^5, q^6, q^7)$ long-run model for CRt is estimated as follows:

$$Betas_t = \boldsymbol{a_1} + \sum_{i=1}^{p} \boldsymbol{b_1} Betas_{t-1} + \sum_{i=0}^{q^1} \boldsymbol{b_2} CA_{t-1} + \sum_{i=0}^{q^2} \boldsymbol{b_3} Capita_{t-1} + \sum_{i=0}^{q^3} \boldsymbol{b_4} Deflator_{t-l} + \sum_{i=0}^{q^4} \boldsymbol{b_5} ED_{t-1} + \sum_{i=0}^{q^5} \boldsymbol{b_6} PSAV_{t-1} + \sum_{i=0}^{q^6} \boldsymbol{b_7} UN_{t-l} + \sum_{i=0}^{q^7} \boldsymbol{b_8} WSTIR_{t-1} + e_t$$

Eq. (08)

The orders of the ARDL $(p, q^1, q^2, q^3, q^4, q^5, q^6, q^7)$ model in the seven variables is chosen using three criterions: Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan-Quinn criterion (HQC) criterion (Pesaran and Smith, 1995).

Lastly, the Error Correction Model (ECM) is estimated to capture the short-run coefficients of the model. The ECM has the following specifications:

$$\Delta Betas_{t-1} = a_1 + \sum_{i=1}^{p} a_i \Delta Betas_{t-i} + \sum_{j=1}^{q1} a_j \Delta CA_{t-j} + \sum_{l=1}^{q2} a_l \Delta Capita_{t-l} + \sum_{i=m}^{q3} a_m \Delta Deflator_{t-m} + \sum_{i=n}^{q4} a_n \Delta ED_{t-n} + \sum_{r=1}^{q5} a_r \Delta PSAV_{t-r} + \sum_{i=s}^{q6} a_s \Delta UN_{t-s} + \sum_{i=v}^{q7} a_v \Delta WSTIR_{t-v} + \lambda ECT_{t-1} + e_t$$

Eq. (09)

where $Betas_t = Country\ risk\ or\ beta\ in\ period\ t$;

$Betas_{t-1} = Country\ risk\ or\ beta\ in\ period\ t\ lagged\ once$;

$a_1 = Annual\ Country\ risk/betas\ \ intercept$;

$a_i, a_j, a_l, a_m, a_n, a_r, a_s, a_v, \lambda = model\ coefficients$; with λ measuring the speed of adjustment towards the long run equilibrium;

$\Delta = first\ difference\ operator$;

$CA_{t-1} = Current\ Account\ Balance\ as\ percenatge\ of\ GDP\ \ in\ period\ t\ lagged\ once$;

$CAPITA_{t-1} = PER\ CAPITA\ GDP\ \ in\ period\ t\ lagged\ once$;

$Deflator_{t-1} = GDP\ DEFLATOR\ in\ period\ t$ lagged once;

$ED_{t-1} = External\ Debt\ balances\ as\ a\ percentage\ of\ GDP\ in\ period\ t\ lagged\ once$;

$PSAV_{t-1} = Political\ Stabiliy\ and\ Absence\ of\ Violence\ Index\ t\ lagged\ once$;

$WSTIR_{t-1} = Weighted\ Average\ short\ term\ interest\ rates\ in\ period\ t\ lagged\ once$;

$UN_{t-1} = Unemployment\ rate\ in\ period\ t\ lagged\ once$;

$ECT_{t-1} = Error\ correction\ term\ in\ period\ \ t\ lagged\ once$;

$e_t = Random\ error\ term\ or\ residual$.

$\boldsymbol{\beta etas_t}$ is the outcome of the covariance between the local equity index return and World Market equity index return divided by the variance of the world market index return. The local equity index is the locally denominated stock indexes for Botswana (BSE). The proxy for the global market index is the Morgan Stanley Capital International (MSCI) Emerging Markets Index. MSCI Emerging Markets Index was chosen over Dow Jones Emerging Market Index and Standard& Poor 500 index because it comprises of stocks that broadly represents stock composition in different countries, and has best performing indexes in Africa especially in the SADC region (All Share Index for South Africa) and major trading partners of these two countries within it. Hence, it is the best benchmark for comparison with stock markets of the emerging economies of Botswana, Zambia and Zimbabwe. Most empirical researchers that have studied on country risk and emerging markets have used MSCI Emerging Market Index as a proxy for market portfolio for these economies (Gangemi, Brooke and Faff, 2000; Cohen,2001; Texeira, Klotzle and Ness, 2008; Verma and Verma, 2014; Mallik and Mallik, 2018).

Stock Index Returns were computed using the formula given below:

$$\boldsymbol{R_t = \frac{S_t - S_{t-1}}{S_{t-1}}\ X\ 100\%} \qquad \textbf{Eq. (010)}$$

Where Rt represents Stock Index Returns at time t;

St represents Stock index at time t;

St-1 represents Stock index at time t lagged once.

The computed returns in Equation (10) are log-normalised in order to improve the normality of the t parameter and this confirms the significance of normality in all statistical analysis.

The economic, financial and political variables mentioned above serve as the explanatory variables that were used to compute the predictive power of the dependent variable, t (Muwando and Gumbo, 2013). External debt and current account balance portrays the role of the fiscal authorities on the economy while interest rates reflect the monetary policy in Botswana. Political risk index was used as a proxy for political stability and absence of violence.

Rationality and consistency of the main assumptions made in the models was tested by performing the residual, stability and coefficient diagnostic tests.

Personal interviews were mainly used as the instrument for collecting primary data while secondary data was collected from secondary sources and recorded systematically. Data for the unemployment rate, GDP per Capita, GDP deflator and current account balance, total external debt, weighted short Interest rates was obtained from the Central Bank, Central Statistical Offices (CSO), Ministry of Finance and International Monetary Fund (IMF) while data for the Political instability and violence index from the World Bank. An interview guide was prepared first (see Appendix B). The researcher carefully selected interviewees through snowball sampling and schedule an appointment with the referrals that includes bank executives, Investors and, fiscal and monetary authorities on the subject under study. This was meant to get diversified ideas on the subject matter. Snowball sampling assumes interviewees are connected so that those connections can be used to construct a sample from a small initial sample. In other words, it involves building a sample through referrals, as each respondent recommends others (Bacon-Shone, 2013). The number of interviewees were few due to data saturation. Snowball sampling was used to explore the interviewees' perception of the main determinants of country risk, the expected trade-off between country risk and its drivers, and ways of managing country risk. Thematic content analysis was employed to analyse primary data from personal interviews, as it is flexible method used in deductive studies where the researcher knows what he is interested in. The data obtained from the personal interviews was analysed under themes written in the interview guide.

5.0 Results and discussion

5.1 Personal interviews response rate

The personal interviews response rate is shown in table 01 below

Table 01.

Interview response rate.

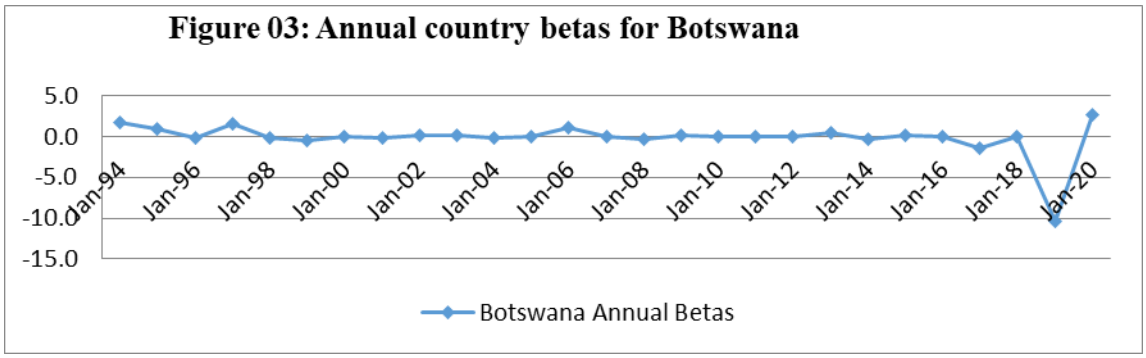
Scheduled Interviews	15
Actual Interviews conducted	9
Response rate	60%

Source: Researcher's own analysis using Ms Excel

Out of fifteen interviews planned to be conducted, nine interviews were conducted in Botswana until the interviewer reached data saturation. This implies sixty percent response rate. As a result of adopting the snowball sampling technique, the researcher was referred to very few interviewees. This probable might be as a result of few people who appreciate and comprehend the complexity of the research subject.

5.2 The annual country betas for the economy of Botswana

The results of the estimated annual betas (see Appendix A) are shown Figure 03 below



Source: Researcher's own compilation from Eviews 10

NB: December 2019 and December 2020 betas are forecasts using the model

The results in Figure 03 indicate that Botswana is a safe designation for investment in SADC. This concurs with the interviewees' response as they perceived that Botswana's economy is more stable and less risky comparatively to other SADC countries. Generally, the annual country beta values are smaller and this converges with empirical literature that emerging markets have lower beta that developed markets (Wdowinski citing Harvey, 1995 and Erb, Harvey and Viskanta, 1996). The sharp fall in forecasted beta in Botswana may been attributed to economic, financial and political stability of the country. The results also indicated that the country of Botswana is a safe and better investment destination for portfolio diversification as most of its betas are negative.

5.3 Multi-collinearity test

Three pairs of variables that were highly correlated include per capita GDP and GDP deflator; per capita GDP and foreign exchange rate, and foreign exchange rate and GDP deflator. As a result, per capita GDP and

foreign exchange were dropped by the model as they had high p-values. The results of multi-collinearity tests are shown in Table 02 below.

Table 02.

Correlation matrix.

	CA	DEFLATOR	ED	PSAV	WSTIR	UN
CA	1.000000	-0.016853	-0.352906	0.246443	0.364083	-0.155228
DEFLATOR	-0.016853	1.000000	0.385307	0.584751	-0.439466	-0.408279
ED	-0.352906	0.385307	1.000000	-0.011057	-0.563158	-0.334663
PSAV	0.246443	0.584751	-0.011057	1.000000	-0.146439	-0.279055
WSTIR	0.364083	-0.439466	-0.563158	-0.146439	1.000000	-0.056170
UN	-0.155228	-0.408279	-0.334663	-0.279055	-0.056170	1.000000

Source: Researcher's own analysis using EViews 10

Table 02 indicate that there is no multi-collinearity problem as all the coefficients are less than 0.8.

5.4 Normality distribution tests

The results of the Jarque-Bera test are presents in Table 03 below.

Table 03.

Summary of descriptive statistics.

	BETAS	CA	DEFLATOR	ED	PSAV	WSTIR	UN
Mean	0.124080	7.880800	83.71924	0.117732	1.015504	5.115200	19.56640
Median	-0.031400	8.930000	78.47600	0.136400	1.020000	5.010000	18.54000
Maximum	1.756300	19.25000	173.3450	0.180000	1.110000	9.400000	26.20000
Minimum	-1.356400	-6.280000	27.09300	0.039000	0.850000	1.650000	15.88000
Std. Dev.	0.644894	6.232261	43.04154	0.046782	0.071278	1.990155	2.486180
Skewness	0.825972	-0.369832	0.485807	-0.390793	-0.675987	0.424284	0.768776
Kurtosis	4.607149	2.683840	2.149132	1.721436	2.720696	2.415558	3.195794
Jarque-Bera	5.533177	0.674021	1.737512	2.339168	1.985256	1.105874	2.502503
Probability	0.062876	0.713901	0.419473	0.310496	0.370601	0.575258	0.286146
Sum	3.102000	197.0200	2092.981	2.943300	25.38760	127.8800	489.1600
Sum Sq. Dev.	9.981307	932.1858	44461.78	0.052526	0.121933	95.05722	148.3462
Observations	25	25	25	25	25	25	25

Source: Researcher's own analysis using EViews 10

Table 03 indicate that all the residuals are normally distributed as their Jargue-Bera p-values are more than 0.05. Hence, the data follows a normal distribution.

5.5 Stationarity tests

The results of the unity root tests of the model type 'Intercept without trend' are shown in Table 04 below.

Table 04.

Augmented Dickey-Fuller (ADF) Unit roots test results for stationarity.

Variable	Significance Level	Test statistic[I(0)]	Critical values[I(0)]	P-value I(0)]	Test statistic [I(I)]	Critical values [I(I)]	P-value [I(I)]
Annual Country Betas	1% level	-5.203	-3.738	0.00			
	5% level		-2.992				
	10% level		-2.636				
GDP Deflator	1% level	3.073	-3.738	1.00	-3.859	-3.753	0.00
	5% level		-2.992			-2.998	
	10% level		-2.636			-2.639	

Current account balance as % of GDP	1% level 5% level 10% level	-2.907	-3.738 -2.992 -2.636	0.06	-5.215	-3.753 -2.998 -2.639	0.00
External debt as % of GDP	1% level 5% level 10% level	-1.832	-3.738 -2.992 -2.635	0.36	-5.214	-3.753 -2.998 -2.639	0.000
Political Stability and Absence of Violence Index	1% level 5% level 10% level	-4.793	-3.738 -2.992 -2.636	0.00			
Weighted Short Term Interest rates	1% level 5% level 10% level	-1.007	-3.770 -3.005 -2.642	0.73	-6.536	-3.770 -3.005 -2.642	0.00
Unemployment Rate	1% level 5% level 10% level	-3.892	-3.738 -2.992 -2.636	0.00			

Source: Researcher's own compilation from EViews 10

In the Table 04 above, the following variables are stationary at level[I(0)]: annual country betas, political risk and absence of violence and unemployment while the other variables like GDP deflator, current account, external debt and weighted short term interest rates were differenced one[I(1)] for them to be stationarity.

5.6 Optimum lag length

To perform cointegration test among the variables in the ARDL bound testing, it is a prerequisite to establish the optimal lag to avoid the hypothesis of serially correlated residuals in the cointegrated equation. The researcher limits the estimation to two lags since the possibility of serially uncorrelated residuals will occur when the number of lags is increased. However, it has to be done parsimoniously to avoid over-parameterization problem (Pesaran, Shin and Smith, 2001). The results of optimum lag selection are shown in Table 05 below.

Table 05.

Optimum lag selection.

Lags	AIC	SIC	HQC
1	2.00000	2.39503	2.0994
2	1.40027**	2.14416**	1.57550**

Source: Researcher's own compilation from EViews 10

NB: ** denotes optimal lag chosen.

In Table 05 above, lag 2 was chosen as the optimum lag for an ARDL model for Botswana as it has the lowest value for the entire three criterions.

5.7 Co-integration Testing using ARDL Bound Test

The results of an ARDL Bound test for co-integration are shown in Table 06 below.

Table 06.

ARDL Bound test for Cointegration

Unrestricted intercept and no trend

Dependent variable	F-statistic	Upper Bound	Lower Bound	Remark	What is next??
$Betas_t$	$F_{betas} = 9.90$	2.45	3.61	Cointegration exist	Estimate ECM (Error Correction Model)

Source: Researcher's own compilation from EViews 10

From the Table 06 above, the F-Statistic (9.90) is greater than I(1) the critical value (3.61) hence, we reject the null hypothesis at the 5% level and conclude that cointegration exists among the variables, that is there is a long run relationship between country risk and a set of chosen macroeconomic variables (current account, GDP Deflator, external debt, political stability and absence of violence index, unemployment rate and weighted short term interest rates). This concurs with the responses that the researcher obtains from the personal interviews that the chosen macroeconomic fundamentals have a strong relationship with country risk measured by annual betas.

5.8 Long-run dynamics results

The results of the long run ARDL model coefficients are shown in the Table 07 below.

Table 07.

Estimated long run ARDL model coefficients.

Variable	Coefficient	Std. Error	t-Statistic	P-value	
C	12.19445	6.87150	1.77464	0.1139	
Betas(-1)	-1.06065	0.33709	-3.14649	0.0137	*
Betas(-2)	-0.26751	0.24423	-1.09533	0.3053	
CA(-1)	0.07667	0.02839	2.70075	0.0270	*
CA(-2)	-0.03993	0.02759	-1.42183	0.1929	
Deflator(-1)	-0.10106	0.03944	-2.56233	0.0335	*
Deflator(-2)	0.09944	0.04288	2.31912	0.0490	*
ED(-1)	-12.56024	9.70676	-1.29397	0.2318	
ED(-2)	2.11934	6.46623	0.32776	0.7515	
PSAV(-1)	-7.59846	4.04159	-1.88007	0.0969	
PSAV(-2)	-0.70322	2.30900	-0.30456	0.7685	
WSTIR(-1)	-0.19137	0.08031	-2.38292	0.0443	*
WSTIR(-2)	-0.28711	0.13676	-2.05436	0.0740	
UN(-1)	0.01223	0.06031	0.20275	0.8444	
UN(-2)	0.01396	0.05889	0.23704	0.8186	

Source: Research estimation results from EViews 10

NB: * denotes significance at 0.05

From Table 07, it can be observed that beta in one year lag [Betas(-1)] has a significant long run relationship with country risk because its p-value is less than 5% level. In conclusion, country risk decreases by 1.06% when beta increases by 1%, ceteris paribus. One year lagged current account [CA(-1)] has a long run influence on country risk. Current account balance in one year lag is statistically significant at the 5% level of significance since its p-value is smaller than 0.05. The coefficient of current account variable 0.07667 is positive as expected. This suggests that in the long run, an increase (appreciation) in current account balance by 10% leads to an increase (deterioration) in country risk by 0.7667% in Botswana, ceteris paribus. This may also suggest that country risk is less responsive to changes in current account balance. The results contrast with Vij (2005) who established that current account balance negatively influences to country risk. The long run p-values suggest that one year lagged GDP Deflator [Deflator(-1)] and two year lagged GDP deflator [Deflator(-2)] have a significant long run effect on country risk because their p-values are less than 5% level. In conclusion, country risk has a 10% (0.10106) negative change when GDP deflator in one year lag increases by 1%, ceteris paribus. Furthermore, country risk has a 10% (0.0994) positive change when GDP deflator in two year lag increases by 1%, ceteris paribus. It can also be observed that weighted short term interest rates in one year lag [WSTIR(-1)] has a significant long run relationship with country risk. Weighted short term interest rates in one-year lag are statistically significant since its p-value is less than 5%. In conclusion, country risk decreases by 19% (0.19137) when weighted short term interest rates rises by 1%, ceteris paribus. This concurs with Andrade and Teles (2004) who argues that short term interest rate negatively affects country risk. Therefore, the long run determinants of country risk are annual estimated betas, current account balance, GDP deflator ad weighted short term interest rates.

5.9 Error Correction Model (ECM)

According to Okwuchukwu and Ikenna (2014), the error correction model (ECM) provides a framework for establishing links between the short-run and long-run approaches to econometric modeling. The results of the error correction model are presented in the Tables 08 overleaf.

Table 08.
Estimated error correction results.

Variable	Coefficient	Std. Error	t-Statistic	P-value
C	0.33624	0.30688	1.09568	0.3152
D(Betas(-1))	-1.21757	0.21918	-5.55522	0.0014 *
D(Betas(-2))	-0.35964	0.21671	-1.65951	0.1481
D(CA(-1))	0.08728	0.02430	3.59133	0.0115 *
D(CA(-2))	0.00782	0.02896	0.26996	0.7962
D(Deflator(-1))	-0.11746	0.03809	-3.08364	0.0216 *
D(Deflator(-2))	0.05103	0.04285	1.19085	0.2787
D(ED(-1))	-7.53426	9.62402	-0.78286	0.4635
D(ED(-2))	4.55975	4.98173	0.91529	0.3953
D(PSAV(-1))	-7.45375	2.80052	-2.66156	0.0374 *
D(PSAV(-2))	-1.58561	1.70678	-0.92901	0.3887
D(WSTIR(-1))	-0.22350	0.08696	-2.57020	0.0423 *
D(WSTIR(-2))	-0.34432	0.09648	-3.56899	0.0118 *
D(UN(-1))	-0.00185	0.04389	-0.04224	0.9677
D(UN(-2))	-0.00520	0.06469	-0.08037	0.9386
ECT(-1)	-0.81064	0.58675	-1.38159	0.0216 *

Source: Research estimation results from EViews 10

NB * denotes significance at 0.05 level.

In table 08 above, the error correction term, ECT (-1) = -0.8106 is statistically significant at 5% level of significance. The numerical value of one year lagged ECT implies that the speed of adjustment towards long run equilibrium is 81.06%. In other words, the whole system gets back to long run equilibrium at a speed of 81.06% if there is a shock in any of the short run variables.

Table 08 also indicates that differenced one year lagged beta [D(Betas(-1))] has a significant short run relationship with country risk. Beta in one year lag is statistically significant at 5% level of significance since its p-value is less than 5%. A coefficient of -1.21757 implies that when beta increases by 1% country risk decreases by 1.22%, ceteris paribus. It can be observed that differenced one year lagged current account balance [D(CA(-1))] has significant short run relationship with country risk. Current account balance in one year lag is statistically significant at the 5% level of significance.in conclusion, country risk increases by 8.73% [0.08728] when current account balance increases by 1%, ceteris paribus. These findings are in line with Georgescu (2007) who argue that large current account deficit leads imbalance in the external position of a country, thus leading to high country risk. The short run p-values indicate that differenced one year lagged GDP deflator [D(Deflator(-1))] has a significant short run effect on country risk. GDP Deflator in one year lag is statistically significant at 5% level significance since its p-value is less than 5%. In conclusion, country risk has a 11.75% [-0.11746] negative change when GDP Deflator increases. It can also be observed that differenced one year lagged political stability and absence of violence index [D(PSAV(-1))] has a significant short-run with country risk. One year lagged political stability and absence of violence index is statistically significant at the 5% level of significance since its p-value is less than 5%. A coefficient of -7.45375 implies that county risk decreases by 7.45% when political stability and absence of violence index increases by 1% in the short-run, ceteris paribus. This contradicts the apriori condition.

The short run p-values also suggest that differenced one year lagged weighted short term interest rates [D(WSTIR(-1))] and differenced two year lagged weighted short term interest rates [D(WSTIR(-2))] have a significant relationship with country risk. Weighted short term interest rates in one year lag and in two year lag are statistically significant at the 5% significance level because their p-value is lower than the than 5%. In conclusion, country risk decreases by 0.22% [-0.2235] when one year lagged weighted short term interest rates increases by 1%, ceteris paribus. Furthermore, when two year lagged weighted short term interest rates increases by 1%, country risk decreases by 0.34% [-0.34432], ceteris paribus. Other variables are statistically insignificant at the 5% level of significance since their p-values are more than 5%. These findings also converge with Andrade and Teles (2008) who argue that using monetary policy (interest rates) during a crisis is in effective country risk. The finding that interest rates have a significant effect on country risk of Botswana diverges with Bilson, Brailsford and Hooper (2001) who argued that many emerging markets have inactive secondary market for bond issues and government paper making interest rates as an insignificant factor driving financial markets.

5.10 Residual diagnostic Tests of the Error Correction Model

The Error Correction Model (ECM) was tested for serial autocorrelation and heteroscedasticity by conducting the Breusch-Godfrey Serial correlation LM test and Breusch-Pagan-Godfrey test, respectively. The results are shown in Table 09 overleaf.

Table 09.
Summary of Serial Correlation and Heteroscedasticity test.

Residual diagnostics	Type of test	F-statistic	P-value
Serial Autocorrelation	Breusch-Godfrey Serial correlation LM test	3.39178	0.1376
Heteroscedasticity	Breusch-Pagan-Godfrey test	0.83276	0.6418

Source: Researcher's own compilation from EViews 10

Since p-value is greater than 0.05 for the serial autocorrelation tests, we fail to reject the null hypothesis and conclude that the model does not have serial correlation. For the heteroscedasticity test, p-value is greater than 0.05, we fail to reject the null hypothesis and conclude that the model is homoscedastic.

5.11 Stability diagnostic Tests

The results of the CUSUM and CUSUM square test are shown in Figure 04 and Figure 05 below.

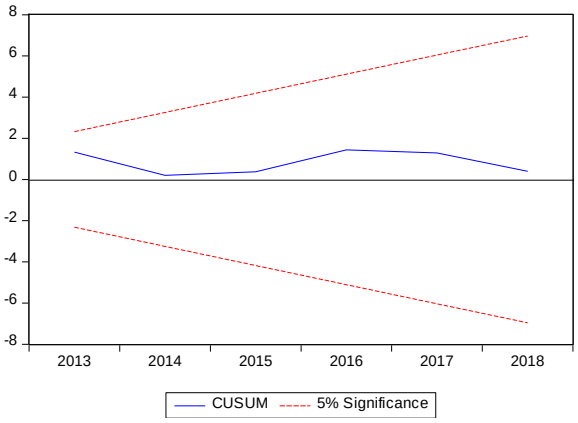


Figure 04. Plot of CUSUM

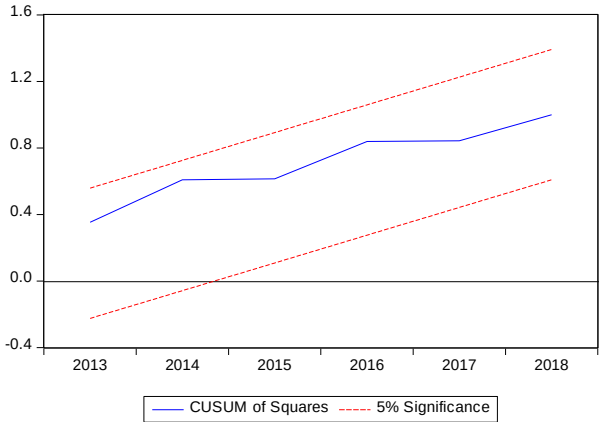


Figure 05. Plot of Cusum of squares test

Source: Research estimation results from E-views 10

In Figures 04 and 05 above, CUSUM and CUSUM squares lies within the 5% boundary, implying that the error correction model is stable and reliable to determine country risk for Botswana.

5.12 Model specification test

The study conducted the Ramsey RESET test to check specification errors. The Ramsey test results are shown in Table 10 overleaf:

Table 10.
Ramsey RESET Test

Ramsey RESET Test

Equation: UNTITLED

Specification: D(BETAS) C D(BETAS(-1)) D(BETAS(-2)) D(CA(-1)) D(CA(-2)) D(DEFLATOR(-1)) D(DEFLATOR(-2)) D(ED(-1)) D(ED(-2)) D(PSAV(-1)) D(PSAV(-2)) D(WSTIR(-1)) D(WSTIR(-2)) D(UN(-1)) D(UN(-2)) ECT(-1)

Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	0.375581	5	0.7226
F-statistic	0.141061	(1, 5)	0.7226
Likelihood ratio	0.612076	1	0.4340

Source: Researcher's own compilation from EViews 10

Since the p-value of the Ramsey RESET test statistic is greater than 0.05, we do not reject the null hypothesis and conclude that the model is correctly specified.

5.13 Interviewees' views on determinants of country risk

From the personal interviews conducted in Botswana, all the interviewees argue that per capita GDP, GDP deflator, external debt balance, current account balance, weighted short term interest rates, unemployment rate, exchange rate and political risk influence country risk. On the most significant variable that affects country risk, some argue that unemployment rate is the key followed by current account and external debt balance while others point that current account balance. For those who perceived that unemployment is the key variable opines that many people are unemployed as the resources are concentrated among the few influential individuals. They further state that current account deficits are affecting the country. This is because the country depends on diamond export as their major source of foreign currency (Makoni, 2015 citing Mahembe and Odhiambo, 2013); fluctuation in the price of diamonds in the world market hit the country hard through worsening the balance of trade position. They also mentioned that there are very few cases of political violence and instability as there is good governance in the country.

5.14 Interviewees' views on expected relationship between country risk and its drivers

The interviewees' responses were in line with a priori conditions as they perceive that all the mentioned explanatory factors [per capita GDP(-); GDP deflator(+); external debt(+); current account balance(+/-); weighted short term interest rates(+/-); political risk(+);unemployment(+)] had the expected sign.

5.15 Interviewees' views on whether country risk is diversifiable or not?

All of the interviewees perceived that country risk is form systematic risk (non-diversifiable) as it is beyond the control of the private investor. They further point that, even if they diversify their portfolios in different countries the contagion effect associated with this risk may adversely affect the return on their investments. This coincides with empirical literature that country risk is of systematic in nature and cannot be diversified in the country's financial portfolio (Erb, Harvey and Viskanta, 1997; Naumoski, 2011; Gangemi, Brooks and Faff, 2000; Damodaran, 2003; Esch, Keiffer and Lopez, 2005). Interviewees also point that fiscal and monetary policy makers should implement effective and efficient policies to manage financial, economic and political variables that drive country risk.

6. Conclusion and policy implications

The study also concluded that short run drivers for the country risk of Botswana are current account balance, beta, political stability and absence of violence index and weighted short term interest rates. The study concluded that long run determinants for the country risk of Botswana are annual betas, current account, weighted short term interest rates and GDP deflator. The study concluded that if there is a shock in the short term variables, the whole economy of Botswana adjusts at a speed of 81.06% to reach its equilibrium in the long run.

Therefore, the key to country risk management is to critically assess the main drivers of country and then key strategies are implemented them. Based on the conclusions above, the government of Botswana needs to enact the import substitution policies, for example, increasing tariff and non-tariff barriers to reduce imports and encouraging domestic production by giving subsidies to the local industries if government funds are available. Export-oriented policies are also important as they make domestic goods competitive on the global markets and export earnings generated finance the process of development. All these policies necessary to manage persistent current account deficits. The government of Botswana should abolish the diamond cum public sector-led development model to create more jobs as it has performed badly when there is sluggish growth in the economy. Investors have to engage the services of both private and public political risk insurers like International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA). Creditors (especially exporters) should rely on export cover and insurance guarantees. Instead of the country of Botswana relying on diamond exports, they offer incentives to all segments of the economy other only the mining sector to encourage economic diversification.

References

Abdul-Mumuni, A., and Quaidoo, C. (2016). Effect of International Remittances on Inflation in Ghana Using the Bounds Testing Approach. *Business and Economic Research, 6(1)*, 192-209.

Africa Development Bank (AfDB), Organisation for Economic Co-operation Development (OECD) and United Nations Development Programme (UNDP) (2015). Africa economic outlook: Botswana

African Economic Outlook (AEO) (2018). Botswana Economic Outlook, African Development Bank Group.

Almahmoud, A.I. (2014). Country Risk Ratings and Stock Market Movements: Evidence from emerging economy. *International Journal of Economics and Finance*, 6(10), 88-96.

Andrade, J. P., and Teles, V. K. (2004). An Empirical Model of the Brazilian county risk - An extension of the Beta Country Risk Model. *Applied Economics*, 38(11), 1271-1278.

Andrade, J. P., and Teles, V. K. (2008). Monetary Policy and Country Risk. *Journal of Applied economics,* 40(15), 2017-2024

Asiri B. K., and Buhail, R. A. (2014). An empirical analysis of country risk ratings. *Journal of Business Studies Quarterly*, 5(4), 52-67.

Bacon-Shone, J. H. (2013). *Introduction to Quantitative Research Methods*. Hong Kong: Graduate School, The University of Hong Kong.

Ben Jebli, M. (2016). On the causal links between health indicator, output, combustible renewables and waste consumption, rail transport, and CO2 emissions: the case of Tunisia. *Environmental Science and Pollution Research, 23(16),* 16699-16715.

Basu, S., Deepthi, D., and Reddy, J. (2011). *Country Risk Analysis in Emerging Markets: The Indian Example*, Working Paper No. 326, Indian Institute of Management Bangalore.

Bilson, C. M., Brailsford, T. J., and Hooper, V. J. (2001). Selecting Macroeconomic Variables as Explanatory Factors of Emerging Stock Market Returns. *Pacific-Basin Finance Journal*, 9(4), 401–426.

Blommestein, H. J., Guzzo,V., and Holland, A. (2010). Debt Markets in the Post-Crisis Landscape, *OECD Journal: Financial Market Trends*, 1, 1 -27.

Blommestein, H. J., and Turner, P. (2012). The Debate over sovereign risk, safe assets, and the risk-free rate: What are the implications for sovereign issuers? *Ekonomi-tek Volume / Cilt*, 1(3), 55-70.

Bouchet, M.H., Clark, E., and Groslambert, L. (2003). *Country Risk Assessment: A Guide to Global Investment Strategy*. Chichester: John Wiley and Sons.

Bouchet, M.H., Fishkin,C.A., and Goguel, A. (2018). *Managing Country Risk in an Age of Globalization: A practical guide to overcoming challenges in complex world*, Palgrave Macmillan.

Central Statistical Office (CSO) Botswana (2014). Statistical Data

Choong, C., Yusop, Z., Law, S., and Liew, V. K. (2005). Financial development and economic growth in Malaysia: The perspective of stock market. *Journal of Investment Management and*

Damodaran, A. (2003). Country risk and company exposure: theory and practice. *Journal of Applied Finance,* 64-76.

Erb, C. B., Harvey, C., and Viskanta, T. (1996a). Political risk, economic risk and financial risk. *Financial Analysts Journal,* 52, 28-46.

Erb, C. B., Harvey, C., and Viskanta, T. E. (1996b). Expected returns and volatility in 135 countries. *Journal of Portfolio Management Spring*, 46-58.

Erb, C. B., Harvey, C. R., and Viskanta, T. E., (1997). Country Risk in Global Financial Management, the Research Foundation of the Institute of Chartered Financial Analysts.

Esch, L., Keiffer, R., and Lopez, T. (2005). *Asset and Risk Management: Risk Oriented Finance. John Wiley & Sons Ltd, United Kingdom.*

GAN Business Anti-corruption report for Botswana, 2016.

Gangemi, M.A.M., Brooks, R.D., and Faff, R.W. (2000). Modeling Australia's country risk: A country beta approach. *Journal of Economics and Business,* 52, 259-276.

Georgescu, G. (2007). Current account deficits and implications on country risk of Romania. *Romanian Journal of Economic Forecasting*, 4(6), 88-96.

Goldberg, C.S., and Veitch, J.M. (2002). Country Risk and the Country Contagion Effect. *Journal of Management Research*, 2(1), 13-21.

Gujarat, D. (2012). *Econometrics by Example*. Palgrave Macmillan, UK

Harvey, C.R. (1995a). The risk exposure of emerging equity markets. *The World Bank Economic Review*, 9, 19-50.

Harvey, C.R. (1995b). Predictable risk and return in emerging markets. *Review of Financial Studies,* 8, 773-816.

Honde, G.j. (2018). African Economic Outlook Country Note of Botswana, *Africa Development Bank Group.*

Honde, G. (2018). "Botswana." African Economic Outlook 2018. African Development Bank Group.

Hoti,S. (2005). Modelling country spillover effects in country risk ratings. *Elsevier Emerging Markets Review, 6, 324-345*.

International Monetary Fund (2018), Article IV Consultation-Press release; Staff report; and Statement by the Executive Director for Botswana, *IMF Country Report* No. 18/268.

Kariuki, P., Abraha. F., and Obuseng, S. (2014). 2014 African Economic Outlook: Botswana, African Development Bank, Organization for Economic Cooperation and Development & UN Development Programme.

Kumar, S. (2010). Determinants of Real Exchange Rate in India: An ARDL Approach. *Reserve Bank of India Occasional Papers,* 30(1), 33-64.

Leith, J.C. (1997). *Growth and Structural Transformation in Botswana*, in Salkin, J.S. et al. (eds). Aspects of the Botswana Economy: Selected Papers, Curry, Oxford.

Mahembe, E., and Odhiambo, N. M. (2013). The dynamics of foreign direct investment in SADC countries: Experiences from five middle-income economies. *Problems and Perspectives in Management*, 11(4), 35-45.

Maipose, G. S. (2008). *Institutional Dynamics of Sustained Rapid Economic Growth with Limited Impact on Poverty Reduction*, Draft, United Nations Research Institute for Social Development.

Makoni, L.R. (2015). Foreign Direct Investment- The case of Botswana. *ACTA UNIVERSITATIS DANUBIUS*, 11(4), 160-173.

Mallik, G., and Mallik, A. (2018). *Searching for alpha consistence in emerging market equities*. State Street Global Advisers Worldwide Entities

McMorrow, K. 1998. *Is there a stable money demand equation at the Community level? Evidence using a cointegration analysis approach, for the Euro-zone countries and for the Community as a whole 131 European Commission* - Economic Papers

Muyambiri, B., and Odhiambo, N. M. (2017). The impact of Financial Development on Investments in Botswana: An ARDL Bounds Testing Approach. *Economia Internazionale / International Economics, 70(2),* 193-216

Muwando. S., and Gumbo,V. (2013). A Country Beta Model for Zimbabwe: *The Pioneer Journal of Theoretical and Applied Statistics*, 6 (1), 25-41.

Naumoski, A. (2012). Estimating country risk premium in emerging markets: The case of Republic of Macedonia. *Financial Theory and Practice*, 36 (4), 413-434.

Nieh, C.C., and Wang, Y.S. (2005). ARDL Approach to the Exchange Rate Overshooting in Taiwan. *Review of Quantitative Finance and Accounting, 25(1)*, 55–71.

Nkoro, E., and Uko, A.K. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation, *Journal of Statistical and Econometric Methods, 5(4)*, 63-91.

Okwuchukwu, O., and Ikenna, J. E. (2014). Econometric Analysis on the Impact of Capital Market Performance on the Nigerian Economy. *International Journal of Financial Economics*, *Research Academy of Social Sciences*, 2(4), 181-190.

Oteng-Abayie E. F., and Frimpong J.M. (2006). Bounds Testing Approach to Cointegration: An Examination of Foreign Direct Investment Trade and Growth Relationships. *American Journal of Applied Sciences, 3 (11):* 2079-2085.

Pesaran, M. H., and Pesaran, B. (2009). *Time Series Econometrics Using Microfit 5.0*. New York: Oxford University Press.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), 289–326.

Pesaran, M. H., and Smith, R. J. (1995). Estimating long run relationship from dynamic heterogeneous panels. *Journal of Econometrics*, 68, 79-113.

San-Martín-Albizuri, N., Rodríguez-Castellanos, A. (2018). *Measuring Country Risk: A Topic of interest*, Chapter 5, 81-98.

San-Martín-Albizuri, N., and Rodríguez-Castellanos, A. (2015). Country risk index and sovereign ratings: do they foresee financial crises? *Journal of Risk Model Validation*, 9(1), 33-55

Saungweme,T., and Odhiambo, N.M. (2019). Government debt, government debt service and economic growth nexus in Zambia: a multivariate analysis. *Cogent Economics and Finance , (7)1*, 1-17.

Teixeira, M. F., Klotzle, M.C., and Ness, W.L. (2008). Determinant Factor of Brazilian Country Risk: An Empirical Analysis of Specific Country Risk. *Revista Brasileira de Financas*, 6(1), 49-67.

Tourani-Rad, A., Choi, D.F.S., and Wilson, B.J. (2006). A time-varying beta approach to measuring New Zealand's country risk. *Journal of managerial finance*, 32 (3), 257-269.

Transparency International (2011). *Corruption Perceptions Index 2011*.

Transparency International (2019). International ranking of Botswana and Zambia in terms of corruption.

United Nations Conference on Trade and Development (UNCTAD) (2013a). World Investment Report- Global value chains: Investment and trade for development, *United Nations*, New York and Geneva.

Verma, R., and Verma P. (2014). Country Risk and Macroeconomic Factors: Evidence from Asian Markets, *Journal of Applied Business and Economics*, 16(5), 51-62.

Vij, M. (2005). The determinants of country risk analysis: An empirical approach. *University of Delhi, 5 (1),* 20-31.

Wdowinski, P. (2004). Determinants of Country Beta Risk in Poland, University of Lodz: *CESifo (Center for Economic Studies and Ifo Institute for Economic Research). CESifo Working Paper Series No. 1120*.

World Bank (2019). The World Bank in Botswana. Last Updated: Oct 13, 2019.

World Bank (2019). World Development indicators. Washington, DC-USA: World Bank Databank.

Appendix A: Estimated Annual Country Betas

Year	Botswana
1994	1.7563
1995	0.8578
1996	-0.1074
1997	1.6233
1998	-0.1258
1999	-0.4527
2000	0.0513
2001	-0.1425
2002	0.1707
2003	0.1598
2004	-0.2252
2005	-0.0509
2006	1.0809
2007	0.0707
2008	-0.3618
2009	0.2014
2010	-0.0766
2011	-0.0321
2012	-0.0595
2013	0.4283
2014	-0.3925
2015	0.1180
2016	-0.0017
2017	-1.3564
2018	-0.0314

Appendix B: Interview Guide

Topic: An empirical study of the country risk of Botswana using the beta approach (1994-2018).
[The interviewee/Interviewer ticks in the appropriate box/ writes in the space provided]

Section A: Demographic Information

1. Name of the company ……
2. Position ……
3. What qualification/s do you hold?……
4. Years of experience……

Section B

1. What do you think are the determinants of country risk in your country?

☐ Per capita GDP ☐ GDP Deflator

☐ External debt balance ☐ Current account balance

☐ Weighted short term interest rates ☐ Unemployment rate

☐ Political risk ☐ Other (please specify) _____

2. Which one is the most significant variable in (1) above and justify your chioce?.....
.....

3. What is the expected relationship between country risk and its independent socio-economic, financial and political factors given below?

Independent Variable	Expected relationship between country risk and the given independent variable	Agree	Disagree
Per Capita GDP	Negative		
GDP deflator	Positive		
External debt balance	Positive		
Current account balance	Surplus–Negative, deficit-positive		
Weighted short-term interest rates	Either Positive or Negative		
Unemployment rate	Positive		
Political risk	Positive		

4. Do you think country risk is diversifiable?
.....
.....

5. What strategies do you think are necessary to manage country risk?.....
.....
.....