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The Nexus between the Tourism Industry and Country Risk in South Africa

Thomas Habanabakize*, Zandri Dickason-Koekemoer

TRADE Research Entity, North-West University, South Africa

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Abstract:

Travel and tourism are major industries that drive the South African economy and create more jobs. However, this industry is not spared from various risks that impede the country's development. The purpose of this study is to assess the effects of specified country risk components (political, financial, and economic risks) and the total number of tourists visiting South Africa. The study analyzed monthly data spanning from 2013 to 2019 to achieve this objective. The Autoregressive Distributed Lag (ARDL) model was used to investigate the responsiveness of the tourism industry (number of arrivals) towards changes in country risk. The Toda-Yamamoto Granger causality was utilized to determine the causation between variables, and the study applied several diagnostic tools to validate econometric models. Findings revealed the existence of a long-run relationship between the tourism industry and country risk. In other words, shocks in country risk components have a long-run impact on the tourism industry. The short-run results supported the cointegration results indicating that all components of country risk influence the number of tourists coming to South Africa. Since no study has been conducted to determine the impact of country risk on the South African tourism industry, these results are of crucial importance. The study suggests that policymakers and government authorities should introduce and implement strategies and policies that improve the country's political, economic, and financial stability to increase the number of tourists to South Africa.

Keywords: tourism industry, autoregressive distributed lag, country risk.

南非旅游业与国家风险的关系

摘要:

旅行和旅游业是推动南非经济发展和创造更多就业机会的主要产业。然而，这个行业也未能幸免于阻碍国家发展的各种风险。本研究的目的是评估特定国家风险成分（政治、金融和经济风险）的影响以及访问南

Corresponding Author: Thomas Habanabakize, TRADE Research Entity, North-West University, South Africa; email: 26767007@nwu.ac.za

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非的游客总数。该研究分析了2013年至2019年的月度数据，以实现这一目标。自回归分布滞后(阿德勒)模型用于调查旅游业(到达人数)对国家风险变化的响应能力。户田山本格兰杰因果关系被用来确定变量之间的因果关系，并且该研究应用了几种诊断工具来验证计量经济学模型。调查结果表明，旅游业与国家风险之间存在长期关系。换言之，国家风险成分的冲击会对旅游业产生长期影响。短期结果支持协整结果，表明国家风险的所有组成部分都会影响到南非的游客数量。由于尚未进行任何研究来确定国家风险对南非旅游业的影响，因此这些结果至关重要。该研究表明，政策制定者和政府当局应引入和实施改善该国政治、经济和金融稳定性的战略和政策，以增加前往南非的游客数量。

关键词：旅游业，自回归分布滞后，国家风险。

1. Introduction

Tourism is one of the core sectors that drive economic growth and global development. Tourism is the world's third-largest export after food, fuel, and chemical products (World Tourism Organization, 2018). The contribution of the tourism industry is not just limited to transport and economic development. It also plays a significant role in stimulating financial development growth by fostering foreign exchange revenue, promoting industrial development, stimulating investment in new infrastructures, and generating employment possibilities (Blake et al., 2006; Cernat & Gourdon, 2012; McKinnon, 1964). In 2016, this sector created more than 292 million jobs and contributed 10.2 percent of the global economy. In other words, the contribution of the tourism industry towards the global economy was US\$7.6 trillion in 2016. Statistics of 2019 revealed that one in five new jobs created in 2017 was created by the tourism and travel industry. In the same year, 2017, tourism accounted for 10 percent of existing jobs in the global workplace (World Travel and Tourism Economic Council, 2020). However, due to mobility restriction as one of the measures to constrain the Covid-19 pandemic, the industry contribution towards the global economy and employment has declined significantly since 2020. The tourism industry's GDP contribution declined by 3.7 percent during this period, and more than 62 million jobs were destroyed. More jobs are still also being lost owing to a decline in the total number of domestic and international tourists.

The importance of tourism is not limited to global contribution as the industry plays a significant role in individuals' continent and countries' economies. For instance, one in ten jobs created in Africa comes from the tourism and travel industries (2014). This shows how important tourism and travel industries are to developing countries' economies and specifically to Africa's social development.

Since the demise of the apartheid regime and begging of democratic governance in South Africa, the travel and tourism industry South African demonstrated steady growth and contribution towards income, expenditure, and employment (Rogerson, 2007; Fourie & Santana-Gallego, 2013; Makumbirofa & Saayman, 2018). In 2017, the South African travel and tourism industry accounted for 14 975 675 foreign tourists, and

the industry's contribution to the total GDP reached 2.8 percent with 722 013 employees (Stats SA, 2018). In 2019, the industrial contribution towards GDP increased to seven percent, while the contribution to total employment increased to 9.1 percent. In other words, the travel and tourism industry contributed 354.9 billion rands to the total GDP, and more than 1 483 200 workers were employed by the tourism industry.

However, the contribution of the travel and tourism industry in South Africa is not spared from various limitations such as political, financial, and economic risks. Although the abolition of apartheid was a significant political event indicating high achievement in minimizing political risk, substantial evidence indicates that only a few years of post-apartheid era political risk rebounded back. Some of the eminent evidence of political risk in South Africa are high rate of corruption, unemployment rate, workers and civil unrest, high crime rate, dynamism in political opposition, and political squabbles within the ruling party (ANC) (Munusamy, 2015; Standard & Poor's Global, 2016). The occurrence of political instabilities impedes business and tourism activities.

Prospective visitors or tourists may be advised not to visit a specific country for various reasons that include other country risk components (economic, financial, and political risk). For instance, tourists may choose not to visit a country if the latter is encountering terrorist events and/or political upheaval. Political risk also creates uncertainties in the tourism industry as investors fear losing their money or not having adequate returns (Dreyhaupt et al., 2012; Haddad et al., 2015). Additionally, economic instability and inadequate economic policies are the major cause of low household income and negatively impact business environments and financial markets (Eugenio-Martin & Campos-Soria, 2014; Zhang et al., 2015). All these mentioned issues affect the performance of the tourism and travel industry and its contribution to a country's social and economic development.

To the authors' best knowledge, no research was conducted to analyze the effect of all country risk components (political, financial, and economic) on the numbers of tourists to South Africa. Research conducted focused on one or two components of country risk, and their attention was on income rather than numbers of tourists. For example, Croucamp and Hind (2014) investigated political and economic risk in

the tourism sector. Muzindutsi and Manaliyo (2016) analyzed the effect of political risk on tourism revenue. Given the power of country risk rating on the South African economy and the lack of enough literature on the topic, it is significantly imperative to conduct a study on the matter. Therefore, this research aims to close the gap and contribute to the existing literature by examining the impact of country risk on the South African tourism and travail industry. This study is structured as follows: the second presents a literature review. The third section provides the data and methodology of the study. The fourth section provides empirical results. At the same time, the fifth section is dedicated to the study's conclusion.

2. Literature Review

The general belief contends that the performance in tourism and travel industry is mainly determined by various components of traditional economic variables such as real exchange rate, industrial production, inflation rate, and money supply; and other non-economic factors such as security/insecurity, terrorism, and financial crisis) (Irani et al., 2021). This literature review section discusses some existing empirical findings on the nexus between the aforementioned factors and the tourism industry's performance. Additionally, the literature review represents empirical evidence of country risk effects on tourism inflows or tourist arrivals.

Barrows and Naka (1994) analyzed the effect of macroeconomic factors on the United States of America's tourism and hospitality firms from 1965 to 1991. The research findings revealed that positive changes in money supply and domestic consumption positively influenced return on tourism and hospitality stocks. This study also found that the tourism industry was negatively affected by the inflation rate. Similarly, Chen et al. (2006) studied the effect of both economic and non-economic on hotel's return in Taiwan between 1989 and 2003. The study findings indicated that the Taiwanese hotels' stock returns are determined by shocks in money supply and the unemployment rate. These authors, Chen et al. (2012), conducted another study on tourism in Japan to investigate the association between hotel returns and macroeconomic variables between 1976 and 2006. The study found that oil price, discount rate, and unemployment rate significantly influenced hotels return. Demir et al. (2017) performed another study to assess the macroeconomic variable impacts on the Borsa Istanbul Tourism Index from 2005 to 2013. Their findings indicated that the foreign exchange rate impacts tourism stock prices.

Besides economic and non-economic variables, various studies were conducted to investigate the effect of country risk components on both the tourism industry's performance and tourism development. Sequeira and Nunes (2008) analyzed the repercussions of country risk components on international tourism between 1980 and 2002. They found that domestic risk significantly impacts tourist arrivals in rich and poor

countries, though poor countries are more affected than rich ones. Correspondingly, the study by Gozgor and Ongan (2017) in the United States of America on the effect of economic policy uncertainty on tourism demand between 1998 and 2015 suggested that, in the long run, economic policy uncertainty causes a decline in tourism spending. Balli et al. (2018) found similar results on economic policy uncertainty and tourism in countries OECD from 1997 and 2017. Their study highlighted that the gravity of economic uncertainty was more severe in the United States, Canada, and the United Kingdom throughout the global financial crisis and the period that followed the September 11 terrorist attack. Other research findings identified that economic policy uncertainty negatively influences tourism demand (Demir & Gözgor, 2018; Işık et al., 2019; Ongan & Gozgor, 2018).

Tourism or tourist arrivals do not depend on economic policies and performances, as the industry's performance is also contingent on political environment and stability. This finding justifies why various researchers and scholars are interested in determining the nexus between the tourism industry and political risk. Eilat and Einav (2004) asserted that the tourism industry's performance is closely associated with political risk. The works of Khalid et al. (2019) and other of Saha and Yap (2014) equally found that some political issues such as political instability, lack of security, and public unrest cause the tourism inflows to decline. Lanouar and Goaiad's (2019) findings supported these results, suggesting that between 2000 and 2016, Tunisian tourism activities decreased due to political violence and terrorist attacks. Balli et al. (2019) highlighted that the risk associated with geopolitical affairs infers adverse effects on tourism inflows within emerging economies such as Mexico, South Africa, and South Korea.

Besides the vast literature on the relationship between country risk and the tourism industry's performance, the existing literature remains controversial and inconsistent. While Neumayer (2004) stressed that political risk impeded tourist arrivals, Yap and Saha (2013) stated that irrespective of being a significant determinant factor of tourism revenues and tourist arrivals within countries, an asymmetric relationship existed between tourism and political risk. Nonetheless, the same authors in their study on 139 countries found that the higher the country's risk level, the lower the tourism business within a country (Saha & Yap, 2014).

The tourism industry plays an important role in growing the country's current account balance. However, being one of the services exports industries, tourism is seriously affected by financial risk or financial instabilities. Financial stability is also a key stimulus of foreign investment inflow and tourism and subsequently contributes to countries' development (Lee & Chen, 2020). Financial risk is closely linked to economic risk, and both include fast growths in energy prices and/or production cost, the swift decline in the

country's terms of trade and fruitless foreign investment. Therefore, country risk affects investors and tourist arrivals alike (Nagy, 1988; Sequeira & Nunes, 2008).

The study of Lee & Chen on 106 countries for the period from 2006 to 2017 also suggested that country risk significantly impacted countries' tourism. However, the study indicated disparities in the magnitude effect of each component of country risk on tourism development. Their study indicated the low effect of political risk on tourism compared to the effect of both economic and financial risk. Based on various issues aforementioned in the introduction and literature review, this study determines the effects of country risk on the total number of tourists' arrivals in South Africa. The subsequent section discusses the data and method employed.

3. Data Description, Model Selection and Specification

3.1. Data Description

A quantitative research approach is used to assess the implication of country risk components on South Africa's travel and tourism industry. Monthly time series data from 2013 to 2019 with 84 Observation was analyzed for empirical analysis. The sample period was selected based on the availability of data. Variables for empirical analysis consist of tourist arrivals and the three core components of country risk, namely economic, financial and political risks (the PRS Group, 2017). The tourist arrivals consist of quantities of tourists that visit South Africa every month. The employed three components of country risk rating comprise twenty-two indicators: five for economics risk, five for financial risk, and twelve for political risk (the PRS Group, 2017). While the political risk index is based on 100 points, economic and financial risks are based on 50 points, and the high index is related to low risk (Howell, 2011). Table 1 displays necessary information on the study variables.

Table 1. Description of variables

Abbreviation	Variable full name	Description	Measurement	Data source
TR	Tourism	Tourist arrivals	Number of tourists entering SA monthly	Quantec EasyData
ER	Economic risk	South Africa's economic risk index	Index of 50 points	The PRS Group
PR	Political risk	South Africa's political risk index	Index of 100 points	The PRS Group
FR	Financial risk	South Africa's financial risk index	Index of 50 points	The PRS Group

3.2. Model Section and Specification

The study employed the autoregressive distributed lag (ARDL) model to analyze the long-term and short-run impacts of financial and political risk on South African travelers and tourists in the tourism industry. The selection of the model was based on its numerous advantages compared to traditional models such as Engle and Granger (1987), Engsted and Johansen (1997), and Johansen and Juselius (1990). While the latter models require variables to have the same order of integration and a similar number of lags, the former model produces accurate findings even when applied on variables of a different order of integration and a different number of lags. Additionally, the traditional model requires a large sample size while ARDL reaches a sound finding even on a small sample size. Furthermore, traditional models use multiple equations or vectors, while ARDL uses a single equation (Pesaran & Shin, 1998; Pesaran et al., 2001; Habanabakize, 2021). Using all variables depicted in table 1, a simple equation of tourist arrivals function is expressed as follows:

$$TR = f(ER, FR, PR), \quad (1)$$

where TR represents the total number of tourists arriving in South Africa every month, ER indicates economic risk index, FR denotes financial risk index, and PR represents the political risk index. Applying the selected ARDL model to equation 1, the subsequent equation was estimated for the long-run relationship between variables.

$$\Delta LTR_t = \alpha_0 + \sum_{j=1}^k \alpha_j \Delta LTR_{t-j} + \sum_{j=0}^k \beta_j \Delta LER_{t-j} + \sum_{j=0}^k \lambda_j \Delta LFR_{t-j} + \sum_{j=0}^k \delta_j \Delta LPR_{t-j} + \phi_1 LTR_{t-1} + \phi_2 LER_{t-1} + \phi_3 LFR_{t-1} + \phi_4 LPR_{t-1} + e_t, \quad (2)$$

where LTR is the natural log of tourist arrivals; LER is the natural log of economic risk index; LFR is the natural log of financial risk index; LPR is the natural log of the political risk index; α_j , β_j , λ_j , δ_j and ϕ_j are short-run and long-run coefficients to be estimated at a specific period t. Both α_0 and e_t are intercept and error terms, respectively.

To establish a long-run relationship between variables in Equation 2, the following are the cointegration hypotheses set:

Null hypothesis (H_0) : $\phi_1 = \phi_2 = \phi_3 = \phi_4 = 0$ for no cointegration.

Alternative hypothesis (H_A): $\phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 \neq 0$ for cointegration.

The study conducted Wald F-statistics to test the above hypotheses and, using ARDL bounds, compared the estimated F-statistics to lower and upper bounds critical values introduced by Pesaran et al. (2001). The estimated F-statistics, automatically generated through E-views 10, was compared to the critical values from Pesaran et al. (2001) Table. The null hypothesis is rejected if the value of the estimated F-statistics is greater than the upper bound critical values, and the conclusion is that a cointegrating relationship exists amongst variables. However, suppose the value of the

estimated F-statistics is smaller than the lower critical values. In that case, the null hypothesis is not rejected, and the conclusion is that variables do not cointegrate (no long-run relationship).

Further, suppose the value of the estimated F-statistics falls between the values of upper and lower bounds. In that case, study results are inconclusive, and further information is required to establish the long-run relationship between variables. The existence of a long-run relationship between tourist arrivals, political risk, and financial risk requires the estimation of the short-run relationship and the error correction model (ECM). Building on the ARDL model established in Equation (2), the following is the derived ECM:

$$\Delta LTR_t = \alpha_0 + \sum_{j=1}^k \alpha_j \Delta LTR_{t-j} + \sum_{j=0}^k \beta_j \Delta LER_{t-j} + \sum_{j=0}^k \lambda_j \Delta LFR_{t-j} + \sum_{j=0}^k \delta_j \Delta LPR_{t-j} + \varphi u_{t-1} + e_t \quad (3)$$

where u_{t-1} denotes the error correction term (ECT) and φ represents the coefficient of the ECT used to measure the speed of adjustment towards equilibrium.

If a long-run relationship exists between two or more variables, there is also a possibility of causation among them, either in one or both directions. If a long-run relationship exists between variables of this study, causality will also be estimated. The ordinal Granger causality test proposed by Granger (1969) provides valid results only when applied on variables with the same integration order. However, if variables of interest are of a different order of integration, the ordinal Granger causality test may produce erroneous results. To evade inaccurate findings, the authors employed the Toda & Yamamoto (1995) test when variables under consideration have different order of integration and have disparities in sample size (Mavrotas & Kelly, 2001). The following are the estimated equations for the Toda-Yamamoto (T-Y) test:

$$\begin{aligned} LTR_t = & \alpha_1 + \sum_{j=1}^k \beta_{1j} LTR_{t-j} + \sum_{i=k+1}^{k+dmax} \beta_{1i} LTR_{t-i} + \sum_{j=1}^k \gamma_{1j} LER_{t-j} + \sum_{i=k+1}^{k+dmax} \gamma_{1i} LER_{t-i} \\ & + \sum_{j=1}^k \delta_{1j} LFR_{t-j} + \sum_{i=k+1}^{k+dmax} \delta_{1i} LFR_{t-i} + \sum_{j=1}^k \lambda_{1j} LPR_{t-j} + \sum_{i=k+1}^{k+dmax} \lambda_{1i} LPR_{t-i} + e_{1t} \end{aligned} \quad (4)$$

$$\begin{aligned} LER_t = & \alpha_2 + \sum_{j=1}^k \beta_{2j} LTR_{t-j} + \sum_{i=k+1}^{k+dmax} \beta_{2i} LTR_{t-i} + \sum_{j=1}^k \gamma_{2j} LER_{t-j} + \sum_{i=k+1}^{k+dmax} \gamma_{2i} LER_{t-i} \\ & + \sum_{j=1}^k \delta_{2j} LFR_{t-j} + \sum_{i=k+1}^{k+dmax} \delta_{2i} LFR_{t-i} + \sum_{j=1}^k \lambda_{2j} LPR_{t-j} + \sum_{i=k+1}^{k+dmax} \lambda_{2i} LPR_{t-i} + e_{2t} \end{aligned} \quad (5)$$

$$\begin{aligned} LFR_t = & \alpha_3 + \sum_{j=1}^k \beta_{3j} LTR_{t-j} + \sum_{i=k+1}^{k+dmax} \beta_{3i} LTR_{t-i} + \sum_{j=1}^k \gamma_{3j} LER_{t-j} + \sum_{i=k+1}^{k+dmax} \gamma_{3i} LER_{t-i} \\ & + \sum_{j=1}^k \delta_{3j} LFR_{t-j} + \sum_{i=k+1}^{k+dmax} \delta_{3i} LFR_{t-i} + \sum_{j=1}^k \lambda_{3j} LPR_{t-j} + \sum_{i=k+1}^{k+dmax} \lambda_{3i} LPR_{t-i} + e_{3t} \end{aligned} \quad (6)$$

$$\begin{aligned} LPR_t = & \alpha_4 + \sum_{j=1}^k \beta_{4j} LTR_{t-j} + \sum_{i=k+1}^{k+dmax} \beta_{4i} LTR_{t-i} + \sum_{j=1}^k \gamma_{4j} LER_{t-j} + \sum_{i=k+1}^{k+dmax} \gamma_{4i} LER_{t-i} \\ & + \sum_{j=1}^k \delta_{4j} LFR_{t-j} + \sum_{i=k+1}^{k+dmax} \delta_{4i} LFR_{t-i} + \sum_{j=1}^k \lambda_{4j} LPR_{t-j} + \sum_{i=k+1}^{k+dmax} \lambda_{4i} LPR_{t-i} + e_{4t} \end{aligned} \quad (7)$$

In these equations (4-7) $dmax$ represents the maximal of the integration order for all variables employed by the study. The null hypothesis (H_0) in each of the equations above suggests no causality between variables. This H_0 is rejected if a causal relationship exists amongst variables. The modified Wald (MWALD) was employed to determine whether the H_0 was rejected or not. To ensure robustness and accuracy, diagnostic tests were carried out for the employed models (ARDL and T-Y) residuals before regression results interpretation.

3.3. Hypotheses of the Study

Given the study's objective, the following hypotheses were formulated and tested:

H_{01} : Country risk has no significant long-run effect on the tourism industry;

H_{A1} : Country risk has a significant long-run effect on the tourism industry;

H_{02} : Economic risk has a significant negative impact on the tourism industry;

H_{A2} : Economic risk has a positive effect on the tourism industry;

H_{03} : Economic risk has a significant negative impact on the tourism industry;

H_{A3} : Economic risk has a positive effect on the tourism industry;

H_{04} : Financial risk has a significant negative impact on the tourism industry;

H_{A4} : Financial risk has a positive effect on the tourism industry;

H_{05} : Political risk has a significant negative impact on the tourism industry;

H_{A5} : Political risk has a positive effect on the tourism industry.

4. Results and Discussion

4.1. Descriptive Statistics

The descriptive statistics of the study variables are displayed in Table 2. The variables distributions are nearly symmetric, as indicated by the closeness of their mean and median values. This also implies low variability within variables. The skewness statistics suggest that all country risk components, namely LER, LFR, and LPR, are negatively skewed while the LTR is massively skewed. The Jarque-Bera probability values for all employed variables are above 0.05 critical level. This implies that the null hypothesis of the normal distribution is not rejected at a 5 percent significance level. In other words, all the study variables are normally distributed. The presence of normal distribution infers that the nature-employed data is homogeneous. Both LPR and LER have the lowest standard deviation while possessing the highest standard deviation. That means the fluctuation is high in tourist arrivals compared to the country risk components index.

Table 2. Descriptive statistics

	LTR	LER	LFR	LPR
Mean	13.61374	3.496727	3.636755	4.161956
Median	13.61894	3.496508	3.637586	4.158883
Maximum	13.91440	3.540959	3.701302	4.204693
Minimum	13.32137	3.449988	3.526361	4.119037
Std. Dev.	0.114261	0.025538	0.041140	0.023356
Skewness	0.244726	-0.198261	-0.410452	-0.008393
Kurtosis	3.032434	2.355853	2.426915	1.857501
Jarque-Bera	0.842156	2.002540	3.508084	4.569548

4.2. Stationarity and Unit Root Tests

Although the ARLD model provides reliable results irrespective of whether variables are integrated of order one or zero, it is still indispensable to conduct a unit root and stationarity test to ensure that no variable is integrated of the second order. Results from Augmented

Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin test statistic (KPSS) tests are displayed in Table 3. Results in Table 3 justify the choice of the ARLD model for cointegration analysis and variables are of a mixture of I(0) and I(1) integration order, and none of them are I(2).

Table 3. Results of stationarity and unit root tests

Variables	Model	ADF (P-values)		KPSS (LM-values)		Integration order
		Levels	1 st Difference	Levels	1 st Difference	
LTR	Intercept	0.8826	0.0005***	0.560313	0.101170	
	Trends	0.9130	0.0036***	0.053793***	-----	
LER	Intercept	0.2312	0.0000***	0.252871	0.064088***	I(0)
	Trends	0.3967	0.0000***	0.111661***	-----	
LFR	Intercept	0.0758	0.0001***	0.671787***	-----	I(0)
	Trends	0.0455*	-----	0.079608***	-----	
LPR	Intercept	0.3393	0.0000***	0.265201***	-----	I(0)
	Trends	0.5899	0.0000***	0.216317	0.068540***	

Notes: (***), (**) denotes a rejection of the H_0 at the 1% and 5% level of significance, respectively. A series is stationary if the KPSS test fails to reject the H_0 and the ADF test rejects the H_0 .

4.3. Long-Run Analysis

The study applied bound cointegration to assess the existence of the long-run relationship. Based on the Akaike Information criteria (AIC), the ARLD (2, 2, 3, 0) model was selected as the best amongst the top 20 models suggested by Eviews-10 software. This model was estimated considering intercept only. Table 4 displays the obtained results from the bound test for cointegration. As indicated in the table, the computed F-statistics of 11.57007 is greater than all the upper bound values value at a 5 percent significance level. Therefore, the null hypothesis (H_0) for no cointegration among variables is rejected. This implies a long-run relationship between tourist arrivals and the three components of country risk mentioned above. Consequently, the null hypothesis (H_{01}) in section 3.3 is rejected in favor of the alternative hypothesis (H_{0A}). Based on these results, the long-run coefficient has, ipso facto, to be estimated.

Table 4. ARLD bounds test results

F-statistic 11.57007		
Critical Value Bounds		
Significance levels	Lower Bound	Upper Bounds
Bounds		
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

$$LTR = 15.2593 - 3.6929LER + 0.1358LFR + 2.5905LPR \quad (8)$$

The estimated long-run coefficients in Equation 8 indicate that both financial and political risks positively affect tourist arrivals in South Africa. Thus, the null hypotheses suggesting that these two components of country risk have negative effects are rejected. However, based on the same results in equation 8, the null hypothesis suggesting that economic risk significantly affects the tourism industry cannot be rejected. In other words, the results of long-run coefficients indicate that economic risk impedes growth in tourist arrivals. Besides differences in signs (positive or negative), the economic risk index has a high impact on the southern African travel and tourism industry compared to financial and political risk indices. When the economic index rises by one percent, the number of tourists arriving in South Africa declines by 3.6929 percent.

Contrary to the economic risk index, a one percent increase in the financial risk index causes the number of tourists to increase by 0.1358 percent. Similarly, in the long run, a one percent increase in the political risk index leads to a 2.5905 increase in the number of tourists entering South Africa. Given that the high-risk index refers to low country risk, the observed positive cointegration (long-run relationship) between financial risk, political risk, and the tourism index suggests that the number of tourists increases as political and financial risks decline. This result indicates that South Africa's political and financial stability simulates tourism within the country. Alola et al. (2019), Saint

Akadiri et al. (2020), Haddad et al., 2015; Hoti et al. (2007); Lee and Chen (2020) found similar results, yet they contradict those of Muzindutsi and Manaliyo, suggesting that high political risk increases tourism revenue in South Africa. If the number of tourist arrivals declines due to political instability, it is difficult for the country to increase its tourism revenue.

On the other hand, an inverse long-run relationship was found between the economic risk index and the number of tourist arrivals in South Africa. These results suggest that an increase in South Africa's economic risk attracts tourists to visit South Africa. In other words, the results suggest that foreign visitors (tourists) are not much concerned by the economic conditions of the visited country as they are not there to stay yet for a determined period. Nonetheless, these findings contradict Demir and Ersan (2018) and Irani et al. (2021). The latter suggests a positive long-run relationship between the economic risk index and country tourist arrivals.

4.4. Short-Term Dynamics and the ECM

The presence of a long-run relationship, ipso facto, suggests estimating the error correction model (ECM). Results in Table 5 represent the error correction term (ECT) which is negative and statistically significant at a 0.01 level of significance. The ECT coefficient of -0.937895 denotes that almost 94 percent of model shocks are adjusted towards the long-run equilibrium. Therefore, it will take approximately 1.066 ($1/0.937895$) months to return to long-run equilibrium when specific country risk components are considered. In other words, considering the effect of country risk components and speed of adjustment, changes in tourist arrivals quickly adjusted. In terms of short dynamics, tourist arrivals are affected by all components of country risk, as indicated by the significance of their probability values.

Table 5. Short-run dynamism and ECM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LTR(-1))	0.191060	0.103253	1.850407	0.0685
D(LER)	-0.250097	0.772466	-0.323765	0.7471
D(LER(-1))	1.666049	0.823887	2.022182	0.0470
D(LFR)	-1.234984	0.424710	-2.907826	0.0049
D(LFR(-1))	-0.420912	0.523656	-0.803794	0.4242
D(LFR(-2))	-0.863560	0.440863	-1.958792	0.0541
D(LPR)	2.429599	0.651789	3.727585	0.0004
CointEq(-1)	-0.937895	0.126089	-7.438372	0.0000

4.5. Causation between the Tourist Arrivals and Country Risk Components

The presence of a long-run relationship between two or more variables suggests the existence of causality amongst those variables. Nonetheless, this has to be established through an appropriate test. Given that this study analyzed a combination of series I (0) and I (1), the Toda-Yamamoto Granger causality test is appropriate for establishing the causation among variables. Using the information criteria in the VAR system, two lags were selected as the optimum, and these two lags were applied to the T-Y model were estimated using equations 4 to 7. The results in Table 6 suggest that a unidirectional causal relationship exists between tourist arrivals and economic and financial

risks. In other words, both financial and economic risks can cause changes in the number of tourist arrivals. These results confirm the short-term dynamics as both independent variables are statistically significant to cause changes in the number of tourist arrivals.

Additionally, to its ability to cause changes in the number of tourist arrivals, economic risk (LER) was also found to cause changes in political risk. This implies that changes in economic risk can influence political instability. For instance, unemployment, inflation, and sluggish economic growth, which are components of the economic risk, are major causes of strikes and political unrest in South Africa. The T-Y findings suggest tourism inflows are sensitive to short-term shocks in both economic and financial risks.

Table 6. T-Y Granger causality test (Chi-square and P-values)

Excluded	Dependent variable				All Included
	LTR	LER	LEF	LPR	
LTR		3.7875 (0.4355)	1.5345 (0.8205)	2.6167 (0.6239)	28.3848 (0.0049)
LER	18.2365 (0.0011)		4.85977 (0.3020)	10.2753 (0.0360)	4.12816 (0.7261)
LFR	12.3322 (0.0150)	0.51278 (0.9723)		7.2173 (0.1248)	10.6498 (0.5591)
LPR	0.99917 (0.9099)	4.12816 (0.3889)	1.24473 (0.8707)		17.5001 (0.1317)

Note: () denotes probability values.

4.6. Residual Diagnostics

The Jaque-Bera (JB), Lagrange multiplier (LM), and ARCH tests were conducted for normal distribution,

residual serial correlation, and heteroscedasticity. The results for these diagnostic tests are presented in Table 7. Based on the probability values in Table 7, none of

the null hypotheses is rejected. Consequently, the analyzed data set is normally distributed while

employed models (ARDL and T-Y) are free from heteroscedasticity and serial correlation bias.

Table 7. Residual diagnostics results

Test		P-value	Decision	Conclusion
J-B	Normal distribution	0.880	H_0 not rejected	Data is normally distributed
L-M	Serial correlation	0.976	H_0 not rejected	No serial correlation
ARCH	Heteroscedasticity	0.567	H_0 not rejected	No heteroscedasticity

5. Conclusion

This study aimed to assess the effects of country risks on the South African travel and tourism industry, focusing on the number of arrival tourists. The study also intended to provide a better understanding of whether, through the linkage between country risk components and the tourism industry, the latter can be improved by eradicating country risk issues. Additionally, the study aimed to close the gap in the South African literature regarding the linkage between tourism and country risk as few conducted research focused on each country's risk index individually, not altogether. The study employed various econometric approaches that include the ARDL, ECM, and T-Y models to achieve the aimed goal.

The research findings revealed a long-run relationship between the number of tourist arrivals and specified country risk components, namely political, financial, and economic risks. It was found that a rise in both political and financial risk indices, that is, a decline in both political and financial risks, leads to a rise in the number of tourists coming to South Africa. However, an inverse long-run relationship was found between low economic risk and tourist arrivals. In other words, the number of tourists increases during the economic uncertainties. The short-run results revealed that changes in all components of country risk significantly affect the number of tourist arrival in South Africa. This finding was supported by the T-Y results that a unidirectional causality from both economic and financial risks towards tourist arrivals.

The study constraints relate to a limited dataset and time horizon. Future studies should extend the simple size of variables are available. Additionally, although the current study provides useful and reliable empirical results for assessing country risk effect on tourist arrivals, further research should be conducted to examine country risk impact on individuals' firms within the South African travel and tourism industry.

Besides the research limitation mentioned above, this article brings a new element on how country risk components can positively or negatively influence the number of tourists in South Africa. Up to date, no study has been conducted to test the responsiveness of tourism inflow towards changes in country risk components. The results of this study can be applied or extended to other countries facing similar challenges as South Africa. The Autoregressive distributed lag (ARDL) model applied in this study is one of the recent and strong approaches, same as the robustness of the

models. Dr. Thomas Habanabakize has adequate skills in econometric analysis while Prof Zandri Dickason Koekemoer specializes in financial risk management. A combination of skills from both authors justifies the contribution and scientific novelty of the article.

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