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Country Risk and FDI Inflow in Mauritius: An asymmetric impact

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Abstract

The concept of investment has emerged as a fundamental tool globally. FDI has been a crucial weapon in the economic development of countries, mainly developing ones. This study assesses the existence of asymmetry in the risk-FDI nexus in the case of Mauritius. The constructed county risk index from the Principal Component Analysis (PCA) includes a

combination of political, financial and economic sub-components of risk. The impact of country risk on FDI Inflows is then explored using a dynamic time series approach using annual data from a time interval of 1980 – 2019. The existence of potential asymmetric effects of risk on FDI is tested using a non-linear ARDL (NARDL) model. Both the long run and the short run have been studied, where the findings reveal that the negative changes are significant as compared to the positive changes of risk towards FDI Inflows. The regression results also conclude the presence of asymmetry in the risk-FDI linkage. Furthermore, the graph generated from the cumulative dynamic multiplier confirms that the magnitude of the negative shock of risk is stronger. Finally, the stability and the diagnostic testing corroborate the use of the NARDL in testing the risk-FDI linkage.

Keywords: Country risk; FDI Inflows; Asymmetry; NARDL; Mauritius

Introduction

The pivotal function of foreign direct investment (FDI) as an impetus for economic growth and development has been massively documented in the empirical literature by previous researchers and scientists. Despite considerable efforts channelled towards the identification of FDI determinants, the subsequent dispute is still unresolved. The constant research on FDI has been of great interest to academics and policymakers. The reasoning behind this is related to the possible advantages of FDI in host countries. One major prospect in the case of developing

economies is the closing of the savings-investment gap, allowing these countries to better address their need for gross investment. In a broader aspect, the creation of jobs, the transfer of technology and the rise in economic growth while boosting domestic competition have been a motivating force to attract FDI (Asiedu, 2002 and Quazi, 2014). The benefits derived from FDI make it a must for various countries, especially developing ones, to adopt intended strategies aimed at attracting FDI inflows to fuel economic sustainability and reduce poverty. Consequently, African countries are strengthening their attempts to attract FDI through constructive policy changes. In view of its expected benefits, there has been an escalating drive to attract FDI inflows to Mauritius.

The rise in FDI over the years resulted in the upliftment of investment to the forefront of the multilateral trade debate (WTO, 2021). Over the last few decades, with globalisation and industrialisation, FDI has been considered a trigger for international capital transfer. From the statistics brought forward by the UNCTAD World Investment Report 2022, FDI rose globally by 64%, reaching nearly $ 1.6 trillion, commonly referred to as the global FDI rebound. The trends in FDI over the past years have seen a few changes due to the occurrence of numerous economic events and have therefore been subject to various theoretical and empirical studies. Developing countries have shaped their economy in such a way as to attract the maximum amount of direct investment. The benefits of FDI in developing economies have been largely studied in the past literature (Amirahmadi et al., 1994; Loungani and Razin, 2001; Wint and Williams, 2002; Majeed and Ahmad, 2008; Kok and Acikgoz, 2009; Bose, 2012).

The concept of FDI was mainly generated from the classical theories of international trade. The comparative advantage theory, explained by Ricardo (1817), attempted to justify FDI as a fundamental pillar. Heckscher-Ohlin (1933) provided an extension of the comparative advantage theory. The model explained that countries will export goods produced with cheap resources and import those that require scarce factors of production. The comparative advantage was further advocated by other researchers (Mundell, 1957). However, the comparative theory had so many unrealistic assumptions. The model assumed that trade is taking place between two countries only, and factors of production are perfectly modelled. Over the years, various theories have been identified, each having its own specifications and ideals, such as the Market Capital Theory, Macroeconomic Theories, amongst others. The most familiar theory of FDI, the Eclectic Paradigm, was presented by Dunning (1977). The theory is mostly based on the OLI framework while considering the ownership, location and internationalisation benefits.

Previous studies focused on the importance of FDI in promoting economic development and positively impacting living standards (Cantwell and Bellak, 1998; Hrechyshkina and Samakhavets, 2018; Hsiao et al, 2023). The dependence of developing countries on FDI inflows remains a sine qua non for their balance of payments, as well as contributes to the overall evolution of the country (De Mello, 1997). It is undeniable that FDI can be influenced by several factors, and so far, there exists a wide range of pieces of evidence that justify the different determinants of FDI (Wheeler and Mody, 1992; Chowdhury, 2005; Ayanwale, 2007; Schneider-Krifa and Matei, 2010; Cuyvers et al., 2011; Seetanah, 2011; Workneh, 2014; Hammache and Ghani, 2017; Saini and Singhania, 2018; Canh, 2020; Makdissi et al., 2025).

To better understand the primary factors of FDI inflows, research activities have been developed to assess the role of country risk as a limiting element of FDI inflow. Accordingly, country risk is composed of three main factors, namely political risk, economic risk and financial risk. Elleuch et al. (2015) define country risk as the inability of a country to attain its responsibilities and commitments due to the presence of any form of political risk, economic risk or financial risk or any form of risk that creates a high uncertainty in the economic progress of a country. Several empirical works have questioned the link between country risk and FDI Inflows in host countries. From existing studies, the main emphasis was on the assessment of political risk as a deterrent of FDI Inflows. Alon et al (1998); Wyk et al (2008); Krifa-Schneider and Matei (2010); Dutta and Roy (2011); Khan et al (2013); Meyer and Habanabakize (2018); Barry and DiGiuseppe (2019); Nassour et al (2020) and Gonchar and Greve (2022) affirmed that political risk is damaging and hence deters FDI Inflows.

To the author's knowledge, there exist few empirical exploits where an aggregated analysis of country risk has been studied, and the findings exhibit mixed conclusions. Hayakawa et al (2013) focused on the impact of political and financial risks. The paper explained that at an initial stage, the political risk factor does not affect inflows of FDI. However, over time, the changes in political risk indeed have an impact on FDI inflows. Meanwhile, the components of financial risk are found to be unassociated with FDI inflows. In the same line, Almahmoud (2014) investigated the empirical relationship between Saudi Arabia's economic, financial and political components and the country's stock movement. The findings concluded the significance of the country risk components, with financial risk being most influential in stock movements. Furthermore, a disaggregated study by Salem and Younis (2021) concluded the negative significance of political risk but the irrelevance of financial risk on FDI Inflows.

An increasing proportion of studies evaluated the impact of political risk on FDI. However, findings remain mixed at best, causing researchers to question the rationality of the empirical literature on the country risk-FDI linkage since other forms of risk have been surprisingly disregarded by the empirical literature. Additionally, existing studies differ in terms of the time span used, the data and methodology implemented, the country or panel of countries studied, as well as the conclusion from the findings obtained. Some studies claimed that risk does not affect FDI. Wheeler and Mody (1992) depicted that political risk does not influence FDI, while Salem and Younis (2011) found that financial risk had no impact on FDI.

Researchers hence conclude that the mixed results across studies make it difficult for future studies to exactly determine the real impact of country risk on FDI, and this is likely to adversely impact the interpretation of theory implications and theoretical analysis (Wyk et al, 2008). The inconclusiveness on the country risk-FDI Inflows nexus hinders researchers from having a proper conclusion on the theoretical implications.

In response to this lack of clarity, this paper supplements the research facet by examining the asymmetric effects of country risk on FDI Inflow in Mauritius. The paper justifies the dynamic nature of FDI Inflows and the psychological behaviour of foreign investors with respect to positive or negative shocks on uncertainties. To the authors' knowledge, there is a surprising lack of empirical information on the non-linear relationship between country risk and FDI inflows in Mauritius. The purpose of this research is to fill the void in the literature by investigating the asymmetric impact of country risk on FDI inflow, to determine whether country risk inhibits or promotes FDI operations in the case of Mauritius.

FDI is essentially dynamic since it reacts to changing economic, political, and regulatory settings, establishing the investigation of asymmetry and nonlinear uncertainty effects on FDI. Inflows of FDI show threshold implications, variance clustering, and disproportionate reaction to unexpected shocks that linear models are unable to sufficiently clarify, as determined by methods like NARDL.

Nonlinear regression has been advocated by researchers since it captures the complexities and unequal impacts of variables as a result of positive and negative changes. The use of the NARDL is implemented in this paper to address the asymmetric behaviour of FDI. Conventional linear models, particularly in complex structures, may conceal significant dynamics. Non-linear ARDL models, hence, provide a more adaptable and realistic way to

analyse these relationships. The major gap in the literature is the lack of adequate studies on the country risk-FDI nexus from a nonlinear context. Studies focusing on the presence of asymmetry of FDI through the NARDL technique have been massively examined by the past literature, namely Lu et al (2025); Qamruzzaman (2020); Zangina (2020), amongst others. However, the country risk-FDI linkage has been slightly overlooked by the existing works.

One of the main contributions of the paper to the existing literature is to firstly provide new insights into the confusing data from existing empirical works on the country risk-FDI nexus by particularly evaluating the asymmetric impacts in the form of positive and negative changes in country risk on FDI inflow in Mauritius. Secondly, as compared to earlier research that employed panel data, the current time-series analysis provides specific insights into the link between country risk and FDI influx in the Mauritius context. Further, the non-linear autoregressive distributed lag (ARDL) model employed in this investigation is dynamic and robust to endogeneity bias, ensuring the accuracy and reliability of the empirical results. Finally, policymakers, academic researchers, and business practitioners might derive insights from the evidence presented.

Following this part, the subsequent sections are organised as follows: Section 2 covers a brief literature review on the country risk-risk nexus. Section 3 focuses on the background of country risk and FDI Inflows for Mauritius, as well as the study's estimates. Section 4 discusses the estimation data and methodological approach. Section 5 presents results and discussions on model diagnostics and robustness checks. Section 6 closes the paper by highlighting policy implications.

Literature Review

Alon et al (1998) proposed a political risk assessment model in order to assess its impacts on country risk. The study included various political risk components, namely, governmental factors such as war threats, social evils such as riots and economic issues such as poverty. The macro-political risk model is used to assess the impact of political risk. The product of the model concluded that countries with relatively high political risk are likely to experience less investment and hence less foreign direct investment.

Musonera (2008) examined the country risk-FDI nexus in Sub-Saharan Africa for the period 1990-2002. The paper implemented a rigorous regression in order to study the relationship between the two variables. The underdeveloped nature of SSA countries increases the

possibilities of different forms of economic, political, and social challenges. It was hence concluded that the use of risk points is insufficient to predict FDI inflows.

Wyk et al (2008) explored the impact of risk on FDI in developing countries. The effects of these macroeconomic variables were also examined, and the hypotheses were tested using the pooled least squares regression. It is revealed that there exists an inverse relationship between political risk in developing countries and the flow of FDI, whereas an increase in operational risks would impede the level of FDI inflows. The findings suggest that the efforts to attract FDI are fundamental; measures such as effective monetary policy or the liberalisation of some institutions could result in reducing uncertainties, thus attracting more FDI.

Krifa-Schneider and Matei (2010) explored the relationship between business climate, political risk and foreign direct investment inflows. The paper considered a sample of 33 developing countries over the period 1996-2008. A panel data analysis is undertaken, accounting for the different variables. According to the fixed effect model, the presence of political risk and the level of trade openness are associated with the level of FDI inflows, while FDI is not affected by the presence of different types of business conditions. On the other hand, the dynamic panel model concludes that a favourable business climate would definitely have a positive impact on FDI inflows.

Dutta and Roy (2011) studied the presence of financial development as well as political risk on FDI. The political factors have been obtained from the ICRG, namely, the government stability and bureaucratic quality, among others. The results reveal that a non-linear association is formed between the level of financial development and FDI inflows. Financial development leads to higher FDI inflows up to a certain level only. Afterwards, the linkage between both variables becomes negative. However, the presence of political stability is likely to positively affect FDI inflows. A combination of political stability and an efficient financial market would simultaneously improve the level of FDI in an economy.

Hayakawa et al (2013) focused on the impact of country risk on FDI in the case of Myanmar. The empirical results conclude that countries with a relatively huge market share and a large growth potential are likely to attract more FDI. The findings further explain that at an initial stage, the political risk factor does not affect inflows of FDI. However, over time, the changes in political risk indeed have an impact on FDI inflows. Meanwhile, the components of financial risk are found to be unassociated with FDI inflows.

Khan et al (2013) emphasised the impact of political risk in the context of 94 countries for a time span of 24 years. Firstly, the study constructed a political risk index comprising 12 components, namely, government stability, internal and external conflicts, and law and order, amongst others. In the case of high-income countries, the findings show the negative significance of components such as government stability, socio-economic conditions and investment profile. Conversely, variables such as corruption and the military in politics had a positive and significant relationship towards FDI inflows. In the case of upper-middle countries, the findings concluded the insignificant influence of political risk indicators.

Almahmoud (2014) investigated the empirical relationship between Saudi Arabia's economic, financial and political components and the country's stock movement and investment flows from the period 2005 – 2012 while using the ARDL model, both in the short run and long run. The paper concluded the significance of the country risk components, with financial risk being most influential in stock movements.

Gobinda Goswami et al (2014) studied the impact of political risk on FDI inflows for a period of 26 years. The paper used both panel data and a factor analysis approach. Other independent variables were used, namely market size, real GDP, trade openness and infrastructural investment. The findings explained that government failure increases FDI inflows instead of reducing them. Conversely, factors such as cultural conflict negatively influence FDI. The study also confirms the significance of the classical determinants of FDI inflows, such as trade openness, GDP and infrastructure.

Sissani (2014) studied the case of Algeria and analysed the impact of political risk on FDI from 1990 to 2012. Algeria's market economy has greatly improved over the years due to the formulation and implementation of monetary and foreign-exchange policies by the Central Bank. The results explain that political risk does not affect the level of FDI, while financial risk is the strongest type of risk that could impact the level of FDI.

Workneh (2014) examined the main determinants of foreign direct investment in Ethiopia. The main variables used were the rate of inflation, improvement of infrastructure, level of trade openness, size of the market and the quality of the workforce. The regression results and the t-statistics show that the variables, such as the level of inflationary tendencies and trade openness, are likely to affect the flow of FDI.

Kariuki (2015) showcased the various factors of FDI in the context of Africa. The estimation results are implemented by using the Least Squares Dummy Variable model. From the panel

data model, the findings conclude that the performance of the CPI positively impacts the level of FDI inflows in Africa.

Ismail (2017) examined the impact of country risk on the market entry decisions of firms and foreign investment in the Middle East North Africa (MENA) region, as well as the Horn of Africa. The results show that there is a positive influence of an economy's GDP on the level of FDI. The second finding concludes that a country's manufacturing exports positively influence FDI inflows. Political risk and FDI are found to be closely linked, and countries with fewer internal conflicts and with no political or social unrest are likely to attract FDI.

Hammache and Chebini (2017) investigated the country risk-FDI in the MENA region and in OPEC and non-OPEC countries while carrying out a panel data analysis. The research methodology applied the Ordinary Least Squares method while assuming a homogeneous dataset. The findings reveal that several factors are likely to influence FDI in MENA countries. However, in OPEC countries, political risk is the most influential and in non-OPEC countries, economic freedom and institutional quality seem to impact FDI the most.

Meyer and Habanabakize (2018) examined the influence of political risks and the level of Gross Domestic Product (GDP) on FDI in South African countries. The objective of this study was to ascertain whether high political instability contributes towards poor investor confidence and reduces the inflow of FDI. The finding from the Granger causality test shows a bidirectional causal relationship between GDP and FDI.

Barry and DiGiuseppe (2019) assessed the concept of political risk and its consequences on investment. The paper concluded that MNCs will not invest in countries with escalating political tensions. It is further concluded that the solutions to reduce the political risks are not easy to implement, especially in the short run. The finding suggests that political transparency could be used as an alternative to other political measures that seem unattainable in the short run.

Sabir and Khan (2018) examined the impact of institutional quality on FDI inflows while using a panel data analysis. The results concluded that the impact of institutional quality is higher in developed countries compared to developing states. It is also estimated that the effect of institutional quality on FDI inflows is positive for all types of countries. Other variables, such as the GDP per capita, trade openness, the agriculture value as a proportion of GDP, as well as infrastructural development, are likely to positively impact FDI in developing countries, while the rate of inflation is likely to deter FDI.

Salehnia et al. (2019) used a timeframe of 20 years in the case of 10 MENA countries to determine the effects of the three types of risk (economic risk, financial risk and political risk) on FDI inflows. The paper implemented the fixed-effect system where the independent variables consist of the risk indices, GDP, the rate of inflation and the ratio of trade openness. From the panel data results, all three risk factors were found to be negatively significant; GDP and the trade openness ratio have been found to positively influence FDI. However, the findings also outline the insignificance of the inflation rate.

Nassour et al (2020) studied the influence of political risk on FDI inflows in the case of selected MENA countries. The political risk is decomposed into 12 variables. The paper used two estimation models, namely the fixed effect and the random effect regression analyses. The results from the fixed effect model depicted that democratic accountability and investment profile are positively significant, while military involvement in politics has a negative influence on FDI inflows. Results from the random effect model show the positive significance of democratic accountability, investment profile and law and order. The Hausman Test concluded that the random effect model is more appropriate for panel data.

Sadeghi (2020) explored the presence of economic complexity as a major factor of national productivity and as the main determinant of FDI. The paper considers the dataset for 79 countries during the period 1980-2014. The countries are classified into three main groups as high income, middle-income or low-income countries. The correlation between FDI inflows and ECI has been calculated, and the bilateral connection between FDI and ECI was forecasted by using the OLS estimators. It is concluded that there exists a significant relationship between the two variables.

Salem and Younis (2021) assessed the presence of country risk on FDI in the Egyptian context for the time span of 2005 – 2015. A multiple regression technique was employed. Country risk was disaggregated into economic risk, financial risk and political risk. The paper attempted to perform 6 multiple regression models. Overall, the composite risk index negatively influences FDI inflows. The paper outlined mixed results among the various models. Firstly, economic risk factors positively impact FDI, while financial risk factors are found to be insignificant. The findings further explained the negative significance of high political risk in deterring FDI inflows in Egypt.

Kellard et al. (2022) inspected the effects of risk on FDI holdings in countries in the Euro Area. The paper focused mainly on sovereign and banking risk. Other key factors, such as political,

geographical and social risk, have been used as explanatory variables. The findings show that sovereign risk influences FDI in both host countries and the country of origin. Conversely, banking risk affects FDI only in the origin of origin; the host country is not affected.

Gonchar and Greve (2022) further added to the literature while assessing the impact of political risk on FDI in the case of Russia from 2000 – 2016. The political risk index is constructed from data published by the PRS Group. To measure the political risk – FDI nexus, the Cox proportional hazard model is adopted. The results indeed corroborated the findings from previous empirical works. The paper hence concluded the negative influence of political risk on FDI inflows.

Alam et al (2024) assess the impact of credit risk on FDI using evidence from eight countries forming part of the South Asian Association of Regional Cooperation (SAARC). The study used a timeframe of 9 years. The Pooled Least Squares and the fixed effect models were employed. The results explained the insignificance of credit risk in influencing FDI.

Situational Analysis

Country Risk in Mauritius

Country Risk is a global phenomenon that has existed since the dawn of time. The country risk index cannot be defined uniformly due to varying value systems across contexts. Previous studies agreed on the fact that country risk represents a series of uncertainties caused by financial, economical and political components (Hoti and McAleer, 2002; James, 2004; Lee and Kanda, 2014; White et al, 2006). From the definition provided, it is hence agreed that the country risk will be composed of political risk, economic risk and financial risk.

Standard & Poor's (S&P) publishes country risk ratings for a wide range of economies, notably Mauritius. Latest sources reveal that S&P Global Ratings has affirmed Mauritius' sovereign credit rating at BBB-/A-3[i], with a stable prognosis for 2023 and 2025. This grade indicates the country's fiscal stability and economic resilience.

In a broader attempt, the current study builds a country risk index for Mauritius while using the risk indicators as per the ICRG dataset. In the first instance, the country risk index is constructed based on the max-min normalisation method. The sub-components for the financial, economic and political risk indices were extracted from the PRS Group’s International Country Risk Guide (ICRG), depending on the availability of data. The country

risk index is then built using the three risk indices while implementing the Principal Component Analysis (PCA) to construct the comprehensive composite index for Mauritius (Table 1).

The risk assessment gives an insight into the trends of the different risk indices from 1980 to 2021, as illustrated in Figure 1 from the Appendices section. The financial risk index has witnessed a continuous rise, implying a high level of uncertainty in the financial markets. Conversely, the economic risk index witnessed small fluctuations before rising drastically in 2020, highlighting the economic uncertainty caused by the outbreak of COVID-19. From 1990 to 2021, there were no major fluctuations in the political index, hinting towards a stable political environment. The country is indeed portrayed as a secure place for investment purposes. The stable democratic atmosphere and the sound social and political environment make Mauritius a paradise in the African region for investors. The highest value of the financial risk index in 2021 can also be justified by the country being grey listed of the list published by the Financial Action Task Force (FATF). The list considered all countries viewed as risky to investors. However, by the end of 2021, with the introduction of Anti Money Laundering/ Countering the Financing of Terrorism (AML/CFT) regulations, Mauritius was removed from the grey list. Hence, one could expect a possible fall in the financial risk index.

Foreign Direct Investment Inflow in Mauritius

Situated on the southeast coast of Africa, Mauritius forms part of the group of SIDs (small island developing states) in the African region. After achieving its independence in 1968, the country has gained tremendous popularity in the international markets and has been classified among upper-middle-income countries. Equipped with a dynamic economy, the country is believed to be the African Hub for investment and innovation. With a stable political environment, the country has been ranked in the African region according to the EIU Democracy Index Report 2022.

FDI made a substantial contribution to the diversification of the Mauritian economy. In 1970, the government created the Export Processing Zone Act (EP2), attracting small Asian investors to operate textile and garment manufacturing companies in the country for favourable access to European and American markets. FDI started flowing into Mauritius in the mid-1980s, mostly in the EPZ and tourist sectors. The country has acquired considerable export-oriented FDI from all over the world because of the government's ongoing efforts, open-door strategy, and fiscal benefits. This form of investment has become critical to the country's economic

progress. The EPZ Act of 1970 intends to promote domestic and foreign investors in export processing to increase export-induced FDI.

Statistics from the Bank of Mauritius show that FDI flows for the first three quarters of 2022 were expected to be MUR 18,231 million, up from MUR 8,539 million for the same time in 2021[1]. The largest receiver of FDI inflows was the "real estate activities" sector (54.6%), the "education sector" (13.4%) and "accommodation and food service activities" (6%) sectors. The top three countries providing gross direct investment to Mauritius were France (22.8%), South Africa (12.8%), and the United Kingdom (5.6%). The graph in Figure 2 depicts the contribution of the FDI inflows to the Mauritian economy and the changes in FDI during the period 2001 – 2023. Overall, the FDI inflows have improved from 1990 to 2023. The country is indeed gaining acceptance from foreign investors. From 2019 to 2020, the fall in FDI inflows of 49.3 % can be explained by the emergence of the pandemic. However, the recovery period of 2022-2023 shows a 31% rise in FDI inflows.

FDI grew by 12.5% between 1970 and 1980 following the creation of the EPZ. From 1985-1990, inward FDI expanded at a rate of 49.5% per year, attributed to both the EPZ sector and other economic sectors. Foreign capital flows began to fall in the early 1990s with an annual growth rate of 13.9%. However, FDI inflows increased between 1997 and 2000.

Data and Methodology

Description of Variables

To investigate the impact of country risk on FDI inflows, we adopt the baseline description in equation (1):

$$FDI_t = \alpha_t + \beta_1 CRISK + \beta_2 GER + \beta_3 ROI + \beta_4 TOPEN + \beta_5 GDP + \varepsilon_t \quad (1)$$

where *FDI* is foreign direct investment, and *CRISK* is the proxy used for the country risk component index. *GRE, ROI, TOPEN* and *GDP* are gross enrolment ratio, rate of interest, trade openness and gross domestic product, respectively. α_t represents the constant term; β is the coefficient, t depicts the time, while ε is the error term. Following Shah (2014), *FDI* is computed as the natural logarithm of *FDI Inflows.* The data were extracted from World Development Indicators.

[1] https://www.bom.mu/publications-and-statistics/statistics/external-sector-statistics/direct-investment-flows

The key variable is country risk, which is measured with sub-components of the International Country Risk Guide (ICRG). The index range is zero to one, with zero denoting the absence of uncertainties and low risk to investment, while one indicates high risk to investment. The country risk composite index is built using a PCA technique. The model incorporates control variables (*GER, ROI, TOPEN, GDP*) that may impact FDI inflow, consistent with prior studies (Farell et al, 2001; Pan, 2003; Cuyvers et al, 2011; Sadeghi et al, 2018; Canh, 2020; Abbas et al, 2021). The gross enrolment ratio depicts the quantity of human capital and is measured by the by dividing the total number of students enrolled in a certain level of education by the population in the official age group for that level and multiplying by 100. The annual rate of interest measures the cost of borrowing, and the data were retrieved from International Financial Statistics. Trade Openness explains the extent to which a country indulges in international trade. It is calculated as the ratio of a country's overall trade (exports and imports) to its GDP. GDP reflects the well-being of the economy and is measured by the natural logarithm of GDP value. This study covers the period from 1980 to 2019. The chosen timeframe is based on available data on country risk sub-components. Data for control variables were obtained from the World Bank's WDI database, unless otherwise noted.

Non-linear autoregressive distributed lag asymmetric approach

The recognition that the dynamics of interactions among variables are not always linear is increasing the popularity of the non-linear econometric approach. Shin et al. (2014) proposed the non-linear ARDL (NARDL) technique, which incorporates error correction to estimate asymmetric relationships between variables. Bayramoglu and Yildirim (2017) present a flexible and dynamic non-linear model capable of capturing symmetries in the adjustment patterns and basic long-run associations. The NARDL technique is useful for dynamic research because it allows for the estimation of asymmetries in both long and short-term relationships, as well as identifying latent cointegration. It evaluates error correction in a single phase, improving model performance even with small datasets, particularly for cointegration tests. Some notable features of the model include the ability to apply the boundary cointegration strategy whether the variables are integrated in the same order or not. The technique is suitable for regressors that are integrated in the same order or mixed (Shin et al., 2014; Jalil, Tariq, & Bibi, 2014). Equation (2) specifies the NARDL general model for testing boundaries and asymmetry in non-linearity.

$$\Delta FDI_t = \varphi_0 + \sum_{k=1}^{p} \varphi_1 \Delta FDI_{t-k} + \sum_{k=0}^{q_1} \varphi_2^* \Delta CRISK_{t-k} + \sum_{k=0}^{q_2} \varphi_3 \Delta GER_{t-k} + \sum_{k=0}^{q_3} \varphi_4 \Delta ROI_{t-k} + \sum_{k=0}^{q_4} \varphi_5 \Delta TOPEN_{t-k} + \sum_{k=0}^{q_5} \varphi_6 \Delta GDP_{t-k} + \varphi_7 FDI_{t-1} + \varphi_8^* CRISK_{t-1} + \varphi_9 GER_{t-1} + \varphi_{10} ROI + \varphi_{11} TOPEN_{t-1} + \varphi_{12} GDP_{t-1} + \varepsilon_t$$

where φ_0 represents the constant term and φ_1 - φ_{12} are coefficients. The remaining parameters are as defined in the preceding equation. Equations (3) and (4) divide the model's asymmetric parameters into positive and negative partial sums to analyse the impact of country risk on FDI.

$$\sum_{k=0}^{q_1} \varphi_2^* \Delta CRISK_{t-k} = \sum_{k=0}^{q_1} (\varphi_2^+ \Delta CRISK_{t-k}^+ + \varphi_2^- \Delta CRISK_{t-k}^-)$$

$$\varphi_8^* CRISK_{t-1} = (\varphi_8^+ CRISK_{t-1}^+ + \varphi_8^- CRISK_{t-1}^-)$$

The bounds test employs the Wald test to generate a joint F-statistic, which is used to determine long-term relationships between variables. The null hypothesis (H_0: $\varphi_7 = \varphi_8 = \varphi_9 = \varphi_{10} = \varphi_{11} = \varphi_{12} = 0$) is compared against the alternative hypothesis (H_a: $\varphi_7 \neq \varphi_8 \neq \varphi_9 \neq \varphi_{10} \neq \varphi_{11} \neq \varphi_{12} \neq 0$). Pesaran et al. (2001) evaluate the estimated F-statistic alongside the crucial values of upper and lower bounds I(1) and I(0). If the computed F-statistic is greater than the upper critical value at either 1, 2.5, 5, or 10%, it implies cointegration; otherwise, there is no cointegration. When the calculated F-statistic falls within the lower and upper bounds, it is deemed inconclusive.

Bounds testing supports valid inference on long-run relationships between stationary or non-stationary variables, which Shin et al. (2014) identified as useful for decomposing partial sums with multifaceted interdependencies. The asymmetry test detects non-linear relationships between variables by accounting for asymmetric influences using decomposed positive and negative partial sums of the relevant regressors. The Wald test of joint significance is used to evaluate the null hypothesis of zero asymmetry. The asymmetric effect is observed when the short-run value of the positive partial sum for country risk differs from the negative partial sums ($\sum_{k=0}^{q_1} \varphi_2^+ \neq \sum_{k=0}^{q_1} \varphi_2^-$). Likewise, asymmetry is observed when the long-run value of the positive partial sum varies from the negative partial sum.

Following the cointegrating relationship, the Akaike information criterion (AIC) is applied to determine a suitable lag length for the NARDL model for all variables. To estimate long and short-run coefficients, we consider equations (5) and (6), respectively.

$$FDI_t = \omega_0 + \sum \omega_1 FDI_{t-1} + \sum (\omega_2^+ CRISK_t^+ + \omega_2^- CRISK_t^-) + \sum \omega_3 GER_t + \sum \omega_4 ROI_t + \sum \omega_5 TOPEN_t + \sum \omega_6 GDP_t$$

$$\Delta FDI_t = \eta_0 + \sum_{k=1}^{p} \eta_1 \Delta FDI_{t-k} + \sum_{k=0}^{q_1} (\eta_2^+ \Delta CRISK_{t-k}^+ + \eta_2^- \Delta CRISK_{t-k}^-) + \sum_{k=0}^{q_2} \eta_3 \Delta GER_{t-k} + \sum_{k=0}^{q_3} \eta_4 \Delta ROI_{t-k} + \sum_{k=0}^{q_4} \eta_5 \Delta TOPEN_{t-k} + \sum_{k=0}^{q_5} \eta_6 \Delta GDP_{t-k} + \upsilon_1 ECT_{t-1} + \varepsilon_t$$

Empirical Results and Discussions

This section encompasses data analysis and the presentation of empirical findings. Table 2 captures the correlation matrix, where the variables have a relatively weak correlation.

The results of the unit root tests in Table 3 show that under the ADF method, variables such as *FDI, ROI* and *GDP* are stationary at the level. The remaining regressors are integrated at order one. Although NARDL allows for different integration orders, the test excludes series with I(2) due to the model's inability to allow for it. The estimated bound test under the NARDL system indicates an F-statistic value of 6.56, exceeding both I(0) and I(1) bounds, each with critical values of 3.15 and 4.54 at 1 per cent. The assumption of no cointegration is hence rejected. The bound test therefore confirms the existence of the long-run asymmetric nexus among the variables (Pesaran et al, 2001).

The Wald restriction test was employed for controlling both positive and negative coefficients of country risk. The findings reveal an F-statistic value of 5.50 with a probability value of 0.02. We reject the null hypothesis of no asymmetry at the 5% level, indicating an asymmetric relationship between the country risk index and FDI inflows.

The following phase of evaluation involves investigating the short- and long-term relationships between the variables. Table 4 illustrates the estimated values for equations (5) and (6).

The signs of the coefficients of $CRISK^+$ and $CRISK^-$ in the short run align with those of the long run period. Nevertheless, the short-term effect of the positive shift in *CRISK* on FDI is negligible. It is hence inferred that *CRISK* has no positive first-order impact on FDI Inflows in the short run. However, the negative shock of *CRISK* is significant with a reported coefficient of 17. This means that as the level of country risk in Mauritius decreases by one percentage point, the level of FDI Inflows will increase by 17 percentage points, hence demonstrating a more than proportionate increase. The rest of the variables are all insignificant in explaining FDI Influx variations.

The long-term nexus estimated in equation (5) remains relevant as the error correction parameter is significant and negative at 1%. The coefficient of the *ECT* demonstrates that disequilibrium triggered a transitory shock in the previous year, which is adjusted by 86 per cent annually.

The long-run estimations reveal that *CRISK* negatively impacts *FDI* Inflows in Mauritius. $CRISK^+$ and $CRISK^-$ have long-run coefficients of -12.4 and 39.9, respectively. In the long run, a negative shock in *CRISK* boosts the inflow of FDI by 39.9 percentage points, while a positive shock in *CRISK* has no meaningful impact. Investors are more susceptible to elevated uncertainty; therefore might significantly limit investment inflows, whereas lower uncertainty may not raise FDI correspondingly. This unequal tendency demonstrates aversion to risk and irreversible investment decisions amid uncertain circumstances (Jardet et al, 2023). The significance of the negative shock of risk has also been backed by Razin et al (1999).

Accordingly, FDI investors typically enjoy greater informational benefits and immediate influence over their investments. When risk falls, these “insiders” acquire conviction to grow operations and investments faster, thereby magnifying the favourable effect on FDI. On the other hand, considering the sunk expenses and control benefits that FDI investors possess, increasing risk might lead to cautious conduct, but not always a proportionate withdrawal. Further, *TOPEN* positively influences *FDI* Inflows by a more than proportionate change, while the remaining variables do not. Conversely, the NARDL show the insignificance of the remaining factors.

The overall model fit for the NARDL regression presented is statistically sufficient, since the model passes the diagnostic criteria at a 5 per cent significance level. The tests presented in Table 5 include normality, serial correlation, heteroskedasticity, CUSUM, and CUSUMSQ.

Finally, Figure 3 and Figure 4 show the coefficient stability testing. Plots of CUSUM and CUSUMSQ values are within critical bounds at a 5% level. Consequently, all the long-run and short-run coefficients in the error correction model are rather steady during the sample period.

Conclusion and Policy Recommendations

In a nutshell, this study aims to explore the asymmetric influence of country risk on FDI influx to produce further insights on the relationship between country risk and FDI. It appears that both the positive and negative shocks of country risk on FDI have been slightly ignored by current theoretical and empirical research. Due to the ambiguity, empirical studies have lately surfaced by examining additional dynamic dimensions by considering specific FDI characteristics and host economy quirks. Evidence reveals that risk frequently exhibits a greater impact on FDI, emphasising the interconnected and linked nature of investment decisions in a globalised economy.

We use the NARDL model to explore the asymmetric impact of country risk on FDI Inflows in Mauritius from 1980 to 2019. The study found an asymmetric long-run connection between country risk and FDI Inflows. However, the positive shift in country risk is statistically insignificant, indicating that increasing uncertainty will have no significant impact on FDI Inflow in the long run. The negative shock in country risk is, on the other hand, significant. This implies that as country risk reduces, FDI Inflow will increase in the country by 40 per

cent. The NARDL further shows the long-run positive significance of trade openness in influencing FDI.

While empirical studies have demonstrated that both positive and negative shifts in uncertainties may influence FDI, the current study implies that the fall in country risk is likely to be more pronounced, and that rising country risk will not impact FDI Inflows. Consequently, we conclude that FDI Inflows will be enhanced if country risk decreases in the short and long run. The findings contradict the prospect theory, a behavioural framework that describes the way individuals make choices in the context of risk and uncertainty. It highlights that people are more vulnerable to losses than profits, which is known as loss sensitivity. However, the negative shock of country risk can be influenced by the psychological perspective of investors. Investors are often cautious of structural risks—those that are external and mostly unpredictable, such as political unrest, contract violations, or regulatory uncertainty. When country risk drops, it indicates greater predictability and security, which are highly prized by foreign investors. This decrease in perceived risk triggers a more substantial inflow of FDI, as investors gain confidence that their investments and operations will be safeguarded and profitable. Furthermore, Mauritius's position as Africa's top FDI host country is based on its low country risk, sound political and economic environment, and key trade and investment linkage, allowing FDI inflows to remain stable and rise in comparison to regional peers.

To minimise country risk, authorities should adopt a multidimensional approach that considers governance, financial stability, regulatory effectiveness and calamity preparedness. The asymmetric effect of FDI is crucial for policymakers, investors, local businesses and scientists. It demonstrates how FDI Inflows influence countries and markets differently. This knowledge allows for improved decision-making, managing risks with the goal of optimising the advantages of FDI while dealing with its shortcomings.

Declaration of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendices

Table 1: Country risk sub-components

Political Risk Components	**Reported Impact on Political Risk**	**Coefficient Sign**
Voice and Accountability	Reduces Political Risk	-
Control of Corruption	Reduces Political Risk	-
Political Stability and Absence of Terrorism	Reduces Political Risk	-
Regulatory Quality	Reduces Political Risk	-
Government Military Expenditure (% of GDP)	Increases Political Risk	+
Economic Risk Components	**Reported Impact on Economic Risk**	**Coefficient Sign**
Budget Balance as a % of GDP	Budget Deficit increases economic risk.	+
Annual Consumer Price Index	Increases Economic Risk	+
Current Account Balance as a % of GDP	Negative CAB Increase Economic Risk	+
Annual GDP Deflator	Increases economic risk	+
GDP per capita	Reduces economic risk	-
Financial Risk Components	**Reported Impact on Financial Risk**	**Coefficient Sign**
Debt Service as a % of Exports of Goods and Services	Increases Financial Risk	+
Value of Exports in the Balance of Payments	Reduces Financial Risk	-
Total reserves in months of imports	Reduces Financial Risk	-
Exchange debt stocks as a % of GNI	Increases Financial Risk	+
Foreign Debts as a % of GDP	Increases Financial Risk	+

Table 2: Correlation Matrix

Variables	*FDI*	*CRISK*	*GER*	*ROI*	*TOPEN*	*GDP*
FDI	1.000	0.547	0.218	0.255	0.647	0.137
CRISK	0.547	1.000				
GER	0.218	0.089	1.000			
ROI	0.255	0.145	0.351	1.000		
TOPEN	0.647	-0.207	-0.118	0.273	1.000	
GDP	0.137	0.588	0.597	0.314	-0.068	1.000

Table 3: Unit Root Tests

	Augmented Dickey – Fuller (ADF) test		Phillips Peron (PP) Test	
Variables	Level	First difference	Level	First difference
FDI	-2.612 (0.099)	-7.212 (0.000)	-2.410 (0.146)	-7.962 (0.000)
CRISK	-1.475 (0.536)	-8.391 (0.000)	-1.338 (0.602)	-8.555 (0.000)
GER	-1.492 (0.527)	-3.324 (0.021)	-0.832 (0.799)	-3.263 (0.024)
ROI	-3.077 (0.039)	-9.632 (0.000)	-4.528 (0.000)	-10.218 (0.000)
TOPEN	-1.291 (0.624)	-5.018 (0.000)	-1.567 (0.490)	-4.980 (0.000)
GDP	-6.796 (0.000)	-2.427 (0.142)	-5.701 (0.000)	-2.233 (0.198)

Table 4: NARDL Results

Regressors	Coefficient	Standard Error	t-statistic	p value
Short-run coefficients				
$\Delta CRISK^{+}$	-11.4857	11.60618	-0.98962	0.3513
$\Delta CRISK^{-}$	17.003	8.415447	2.02045	0.078
ΔGER	15.55245	26.33209	0.590627	0.5711
ΔROI	-0.22044	0.145638	-1.51362	0.1686
$\Delta TOPEN$	5.005561	4.91296	1.018848	0.3381
ΔGDP	-30.315	18.26156	-1.66005	0.1355
ECT	-0.8657	0.09521	-9.0928	0.000
Long-run coefficients				
$CRISK^{+}$	-12.40353	15.83071	-0.78351	0.4559
$CRISK^{-}$	39.8999	17.01001	2.34567	0.0470

GER	-26.9787	19.22316	-1.40345	0.1981
ROI	-0.15253	0.17342	-0.87956	0.4047
TOPEN	23.2211	10.41847	2.22884	0.0564
GDP	-8.68539	5.553818	-1.56386	0.1565
C	192.8364	138.8115	1.389196	0.2022

Table 5: Postestimation Tests

Test Type	F-statistic	Probability
Serial Correlation	0.427	0.735
Heteroskedasticity	0.945	0.525
Normality	1.548	0.46

Figures

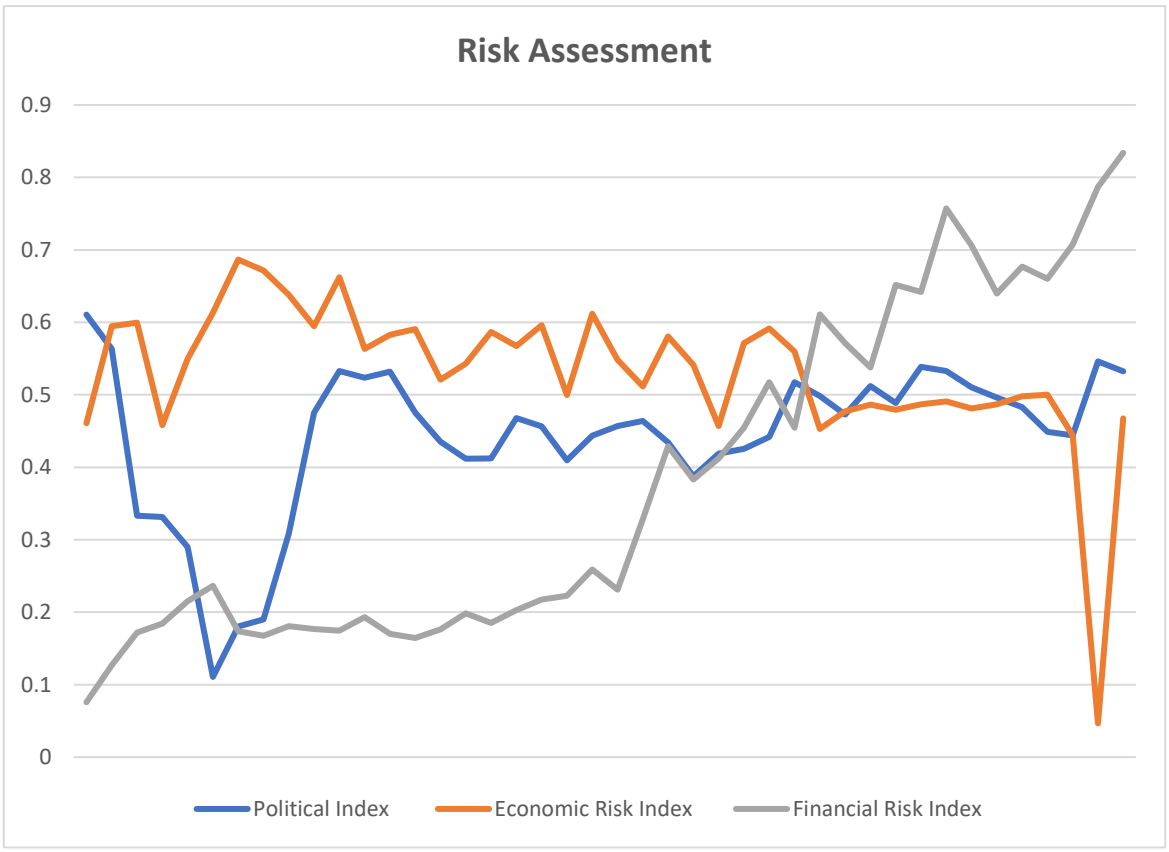


Figure 1: Risk Assessment

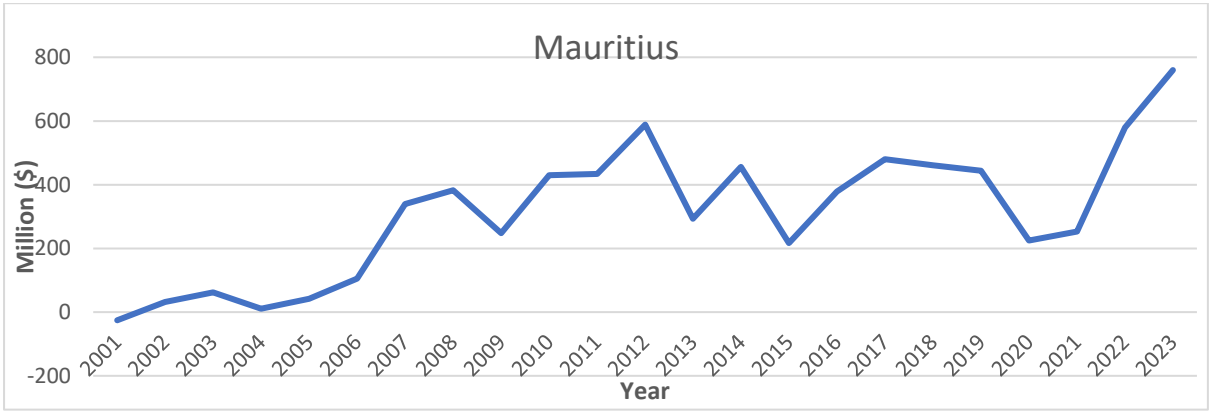


Figure 2: FDI Inflows Trends

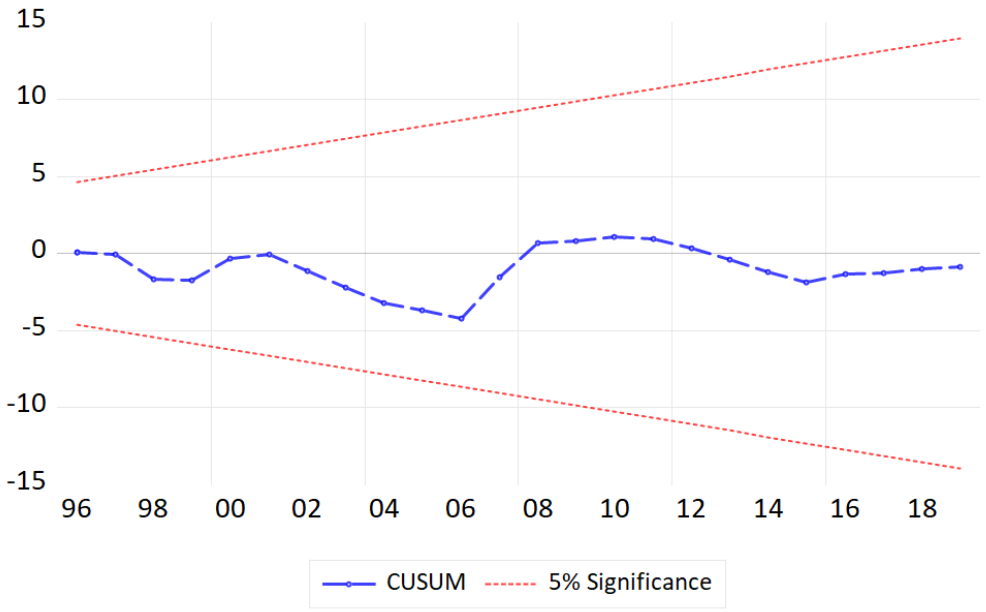


Figure 3: CUSUM Plot

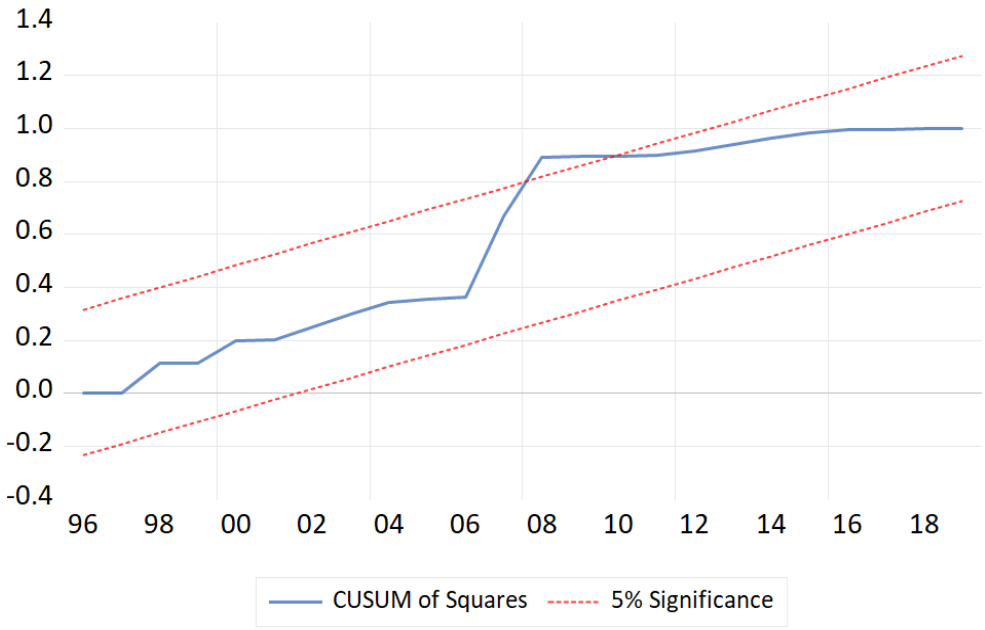


Figure 4: CUSUMSQ Plot

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[i] https://disclosure.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/3359676

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethical Approval Statement

Ethical approval was not required for this study because it was based solely on publicly available, anonymised data and did not involve direct contact with participants.

Supplementary Files

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