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Local Shocks or Global Forces? Exploring the Dynamic Interplay of Sovereign Credit Default Swaps in Emerging Markets

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Abstract

This study explores how emerging economies navigate challenges posed by domestic shocks and global pressures in global financial crises across market conditions. Understanding the dynamic interplay of country-specific and global forces affecting sovereign CDS has become increasingly important. The study sample was extracted from the Refinitiv Eikon database from the period of 2008 to 2023 for the BRIC which represents emerging economies. This study employs GMM and Panel Quantile regression for bull, normal and bear market conditions analysis. The study examined GMM results that most of the determinants narrow the Sovereign CDS spreads whereas VIX and Economic Policy Uncertainty Index widen the spread in our selected markets. Moreover, Panel Quantile regression results explored that variables significantly influence SCDS across market conditions except VIX significantly influences SCDS only in bullish market. However, stock exchange index has no significant influence on SCDS across market conditions. In addition, most of the variables played substantial roles in global financial crises except the stock exchange index in different market conditions. This study uncovers significant insights for policymakers to understand the convergence of local and global pressures which shape the landscape of SCDS premiums, and guide investors, economists and policymakers in prioritizing macroeconomic stability to effectively manage perceived sovereign risk.

Keywords: Shocks or Global Forces, dynamic interplay of Sovereign Credit Default Swaps and Emerging Markets.

Introduction

The financial disruption period was significantly disrupted global economy due to several financial crises including Mexico, Russia and Brazil crises. During these crises financial markets introduced financial instrument in the 1990s era i.e. Sovereign credit default swaps on government bonds. This derivative evidently increased almost $61.2 trillion amount in the great recession 2008 crises to enhance its cruciality in the management of risk (Aldasoro & Ehlers, 2018). Sovereign CDS plays vital role in providing discovery of price and credit risk liquidity. In addition, it also ensures stability in regulatory frameworks in several global financial turmoil including great recession 2008 (Tori et al., 2023), the pandemic of coronavirus (Arellano et al., 2024), the US-China war of trade, Palestine-Isreal war, and Ukraine and Russia war (Li & Bai, 2023). Policy makers, Economist and investors must have

comprehended the determinants of domestic and global aspects that impact changes in sovereign credit default swap spreads.

There are many studies which have explored changes in sovereign credit risk by using proxy as sovereign credit default swap spreads. Some of them researched the importance of country specific and domestic aspects and some have examined global macroeconomic and risk factors in investigating variations in sovereign CDS spreads i.e. Adler & Song, 2010; Fender et al., 2012; Blommestein et al., 2016; Muvunza & Jiang, 2021; Hoang et al., 2023; Kartal et al., 2023; Noyan & Özpençe, 2023; Simonyan & Bayraktar, 2023; and Pan et al., 2024. Despite the growing interest in understanding the SCDS worldwide, few articles distinguish between bullish and bearish markets. One significant element influencing decision-making is the SCDS market's direction. A market that has falling sovereign CDS spreads is investigated as bearish, on the other hand, a market that has rising sovereign CDS spreads is examined as a bullish market. International investors looking to build a portfolio must comprehend how sovereign CDS spreads behave in bullish and bearish market conditions. The present studies are motivated to investigate sovereign credit default swaps on emerging economies with different global financial crises in various market conditions. The aspect is that BRIC countries lack comprehensive empirical research that explains how sovereign credit risk varies across different market circumstances.

In this study, we make three contributions to the existing body of literature: In the BRIC economies, we first looked into the static panel data methods and dynamic effects with the Generalized method of moments helps to capture time-based relationships and control endogeneity by using lagged variables of local and global financial determinants on sovereign credit default swaps. We connected financial variables relevant to country-specific with global uncertainty factors, such as commodities, economic, and financial market uncertainty. The theoretical literature shows a possible combined influence between the variables, although few empirical investigations have investigated this. Second, we examined the impact of Sovereign CDS changes on explanatory factors across quantiles. We specifically looked at how global economic and financial uncertainty aspects and country-specific financial indicators affected sovereign credit risk in various market scenarios, including bullish (higher quantile) and bearish (lower quantile). Third, our sample period is associated with some significant economic and financial events for instance, the Subprime

mortgage crisis, the COVID-19 crisis, the China-US trade war, and the Russia-Ukraine war, which may result in a relationship between Sovereign CDS spreads and the explanatory variables across market conditions. The combination of the GMM and panel quantile regression method is valuable for understanding both the average effects of time dependency and varying sensitivities across conditions, it is suitable, especially for research including financial metrics like sovereign CDS. Panel Quantile regression provides more realistic and dependable results with global financial crises in bull, normal and bear market conditions.

This comprehensive study fills the critical gap of a multi-global financial crisis in understanding how domestic and external shocks influence sovereign risks in emerging economies. The proposed research offers novelty in the BRIC market that uses the generalized method of moments and panel quantile regression methodologies to examine sovereign CDS with country-specific and global indicators across multiple global financial crises from 2008 to 2023 which affects emerging economies. Local factors are the stock exchange index, gold price, real interest rate, and economic policy uncertainty index, as well as global factors, the MSCI Asia index, the Volatility Index (VIX), and foreign exchange rate as explanatory variables. Unlike existing studies that typically explored SCDS and explanatory factors on regions or individual crises, this perspective captures the evolving sovereign credit risk dynamics over time while focusing on heterogeneity and endogeneity issues in risk responses.

Study's remaining parts are as follows: 02 is literature review, 03 is structured for data methodology, 04 is about empirical results and findings, and last part 05 is about conclusion of the study.

Literature Review

According to the studies of Garbade & Silber, 1983; Fleming et al., 1996; and Easley et al., 1998 explored that derivative markets including options, future, and swaps provide distinctive information-based ground for risk management and trading between countries and companies. Thus, the function of the derivative market is to give knowledge about price discovery (Stulz, 2010). The CDS market experienced approx. $62 trillion dollars in the era of 2008. In addition, current market size increased at notional amount of 15 to 20 trillion dollars (Chang et al., 2019).

Given the significant reliance of emerging countries on debt, the credit default swap (CDS) market is a very relevant indication of uncertainty. A risk buyer acquires the credit risk linked to a certain legal entity with respect to a reference from a risk

seller. The risk seller is subject to counterparty risk if the risk buyer violates the conditions of the contracts. However, the risk structure is not entirely bilateral because the risk buyer may not always retain 100% of the risk. The fact that CDS spreads of various nations typically move in lockstep over longer time frames presents the main explanation for the prominence of global factors in analyzing sovereign risk pricing (Peltonen et al., 2014). The CDS premium is referred to as the Credit default swap spread and is represented in basis points. It is derived by equating the protection leg present value, which represents seller protection, with the premium leg present value, which indicates buyer protection (Stulz, 2010). In economics, the major elements that determine the price and risk levels of sovereign credit default swaps (SCDS) include international market trends, domestic economic indicators, and measurements of economic uncertainty. These characteristics influence a country's credit risk, as measured by SCDS spreads, and provide insights into larger economic dynamics.

Our paper is closely related to (Pan et al., 2024; Kartal et al., 2023; Muvunza & Jiang, 2021; Ibhagui, 2021; Augustin et al., 2020; Naifar, 2020; Blommestein et al., 2016; Eyssell et al., 2013) who study the determinants of CDS. Muvunza & Jiang, (2021) investigated that sovereign credit default swap spreads in China stock exchange index, gold prices and real interest rate has influenced on sovereign credit default swap spreads in domestic and global aspects. Pan et al. (2024) has explored that uncertainty in the economy plays significant role to influence sovereign credit default swap spreads. According to the Augustin et al. (2020) and Ibhagui, (2021) studies foreign exchange rate fluctuations effects on sovereign credit risk. In addition, Kartal et al. (2023) foreign exchange rate has significant relationship on sovereign credit default swaps spread. Moreover, Global financial markets have a major influence on the sovereign credit risk pricing in European Monetary Union countries (Blommestein et al., 2016). As per Eyssell et al. (2013) has explored that sovereign CDS spreads is important in discovery of price and determinants of country specific and global factors. Furthermore, variations in sovereign CDS spreads significantly effect on global uncertainty, financial variables and global financial market by using panel quantile regression in GCC countries Naifar, (2020).

The present researches showed that the results may vary based on different economies and variables which encourage to investigate different market conditions of global and domestic variable especially in global financial turmoil on the sovereign

credit default swap spreads.

Methodology

Research Design

This work data was collected from the database of Refinitiv Eikon between the period of January 2008 to December 2023 for the factors including sovereign CDS spreads, Economic policy uncertainty (EPU) Index, gold prices, stock exchange index, real interest rate, MSCI Asia index, The CBOE volatility Index (VIX), and foreign exchange rate. The BRICS 4 selected countries have used as panel data for emerging economies.

We used monthly data of 5-year sovereign credit default swaps from the period of 2008 to 2023 because they are more liquid. The determinants of domestic aspects are used based on previous studies for instance, the research of Malhotra & Corelli, (2018) demonstrates that gold commodity is used as a security asset in situations of economic turmoil, results indicate that gold and sovereign credit default swaps have an inverse relationship. The stock exchange index has an inverse relationship with sovereign credit default swaps as per the findings demonstrated by Muvunza & Jiang, (2021). Moreover, the real interest rate indicates an inverse relationship with sovereign CDS (Hoek et al., 2022). The study by Pan et al. (2024) demonstrates that the Economic Policy Uncertainty Index (EPU) has a positive relationship with sovereign credit default swaps. Furthermore, we have taken global factors as determinants of sovereign credit default swaps based on previous research for instance, the research of Muvunza & Jiang, (2021); and Noyan & Özpençe, (2023) explored that the market volatility (VIX) has significant positive effect on Sovereign CDS. Moreover, we also included the MSCI Asia index which Morgan Stanley Capital International created to measure the performance of the stock markets in emerging and developed economies, it has a negative association with sovereign CDS (Muvunza & Jiang, 2021). Lastly, as per the research of Augustin et al. (2020) foreign exchange rates play a vital role in understanding the impact of sovereign credit default swaps in emerging economies understanding financial flows, economic situations, and assessing trade as it indicates a positive association with sovereign CDS.

Econometric Model

For the model estimation to analyze the sovereign credit default swaps determinants in emerging economies, we have used a static and dynamic panel data approach for the study. The econometric model is constructed as follows:

$$CDS_{it} = \alpha + \beta_1 CDS_{it} + \beta_2 DF_{it} + \beta_3 GF_{it} + \in_{it} \quad (3.1)$$

Domestic factors (DF) include gold price, stock exchange index, and real interest rate, In addition, the Economic Policy Uncertainty index. Alongside global factors (GF) the market Volatility index (VIX), the foreign exchange rate and the MSCI Asia Index.

The error term $\in_{it}$ captures unobserved variations in CDS spreads.

We have employed the Generalized Method of Moments (GMM) estimation in a dynamic panel data method. With this approach, we can handle the potential endogeneity in the explanatory variables and account for country-specific effects. It was developed by Arellano and Bond (1991) and increased the effectiveness of the techniques used by Anderson and Hsiao (1981). Take a look at equation 3.2 below to gain a better grasp of how the GMM operates.

$$= \quad _{-1} + \quad \textbf{for} \quad = 1, \ldots \quad \textbf{and} \quad = 1, \ldots , \quad \ldots . (3.2)$$

The definition of , that is, = + , is assumed to be iid in equation 3.2. This distribution has a mean of zero along with a constant variance. To remove individual disturbances, we introduce a fundamental difference of estimators as in equation 3.3.

$$- \quad _{-1} = (\quad _{-1} - \quad _{-2}) + (\quad - \quad _{-1}) \ldots\ldots (3.3)$$

Here, MA (1) with a unit root represents the ($-$ $_{-1}$) component. We may generate the aforementioned equations for many values of t by proceeding with various lags.

$$_3 - \quad _2 = (\quad _2 - \quad _1) + (\quad _3 - \quad _2) \ldots\ldots (3.4)$$

$$_4 - \quad _3 = (\quad _3 - \quad _2) + (\quad _4 - \quad _3) \ldots\ldots (3.5)$$

$$_5 - \quad _4 = (\quad _4 - \quad _3) + (\quad _5 - \quad _4) \ldots\ldots (3.6)$$

$$_6 - \quad _5 = (\quad _5 - \quad _4) + (\quad _6 - \quad _5) \quad \ldots (3.7)$$

Given that $_1$ is substantially associated with ($_2$ $-$ $_1$) yet unrelated with ($_3$ $-$ $_2$)

In the context of equation 3.4, it would be regarded as a legitimate instrument in that scenario. Likewise, for equation 3.5, both $_1$ and $_2$ would be regarded as appropriate tools for ($_3$ $-$ $_2$). This procedure keeps going until $_{-2}$ or we have a set of instruments that work. This estimator's shortcoming is that it produces biased findings in finite samples due to the instruments' weak relationship with the model variables. Next, limitations are shown by the GMM method of estimate in the first difference. By employing the in-system GMM estimator, these shortcomings may be

eliminated.

We employed the panel quantile regression model developed by Koenker and Bassett (1978). In general, the structure of the model can be expressed as follows:

$$\widehat{\boldsymbol{Q}}_{\boldsymbol{yt}}(\boldsymbol{\tau}/\boldsymbol{X_t}) = \boldsymbol{\alpha_\tau} + \boldsymbol{X_t^{'}\beta_\tau} \qquad \textbf{(3.8)}$$

$\widehat{Q}_{yt}$ is the quantile of yt, X_t is the vector of explanatory variables, and (τ/X_t) is the τ conditional quantile of $\widehat{Q}_{yt}$. symbolize, respectively, the calculated coefficients and unobserved effects at quantile. Formally speaking, the function of distribution F(y) = Prob (Y y) can be used to characterize any random variable "y" and the τ quantile of y is $Q()$ = inf y: F(y) for any 0 < < 1. The random variable is fully characterized by the quantile function. As the answer to a straightforward optimization problem, the quantiles can be described (Koenker 2005). Simply stated, the empirically determined unconditional quantile function is defined as follows: given a random sample y1, y2, y3, yn and the empirical distribution function, $\widehat{F}_y(\alpha)$= 1⁄n ≠ $\{y_i \leq \alpha\}$ (Naifar, 2020).

$$\widehat{\boldsymbol{Q}}_{\boldsymbol{y}}(\boldsymbol{\tau}) = \widehat{\boldsymbol{F}}_{\boldsymbol{y}}^{-\mathbf{1}}(\boldsymbol{\tau}) = \mathbf{inf}\{\frac{\boldsymbol{\alpha}}{\widehat{\boldsymbol{F}}_{\boldsymbol{y}}(\boldsymbol{\alpha})} \geq \boldsymbol{\tau}\} \qquad \textbf{(3.9)}$$

Quantiles can be stated as the answer to a minimization problem.

$$\widehat{\boldsymbol{Q}}(\boldsymbol{\tau}) = \boldsymbol{argmin}_{\boldsymbol{\alpha}} + \{\sum_{\boldsymbol{i}:\boldsymbol{y_i}\geq\boldsymbol{\alpha}}(\boldsymbol{\tau}|\boldsymbol{y_i} - \boldsymbol{\alpha}|) + \sum_{\boldsymbol{i}:\boldsymbol{y_i}<\boldsymbol{\alpha}}\big((\mathbf{1}-\boldsymbol{\tau})|\boldsymbol{y_i} - \boldsymbol{\alpha}|\big)\}$$

(3.10)

We evaluated the SCDS spreads sensitivity across 3 quantiles = (0.25, 0.50, 0.75), the lower quantile of 0.25 represents the bear market, the median of 0.50 as the Normal market or market average, and the upper quantile of 0.75 as the bull market. Notably, the market co-movement among the explanatory and dependent variables is characterized by the values of i,t.

Empirical Analysis and Findings

We begin our analysis by reporting the descriptive statistics, and preliminary data diagnostics have been carried out. Unit root testing for panel data statistics is crucial throughout the pre-diagnostic process. The appropriate panel data unit root tests for a balanced panel are Im-Pesaran-Shin (IPS) and Levin-Lin-Chu (LLC). We are using a single equation method. The Bruesh-Pagan test is used to determine if estimations using the pooled OLS are suitable. The Hausman criteria test is used to determine which random or fixed effect model produces the best results when the data is inadequate for Pooled OLS estimations. In addition, an econometric method called the Generalized Method of Moment (GMM) is used to examine the dynamic connections

between variables in panel data, The dynamic panel data technique has a key benefit in that it can handle mixed integration orders (variables that are stationary I(0) and I(1), or a combination of both). Furthermore, we used panel quantile regression (PQR) to capture the impacts of bull, bear and normal markets on sovereign CDS spread in multiple global financial crises.

Table 1

Descriptive Statistics

Variable	**Mean**	**Std. Dev.**	**Min**
LCDS	4.952	.507	4.369
LGP	8.492	2.404	5.776
LSE	9.121	1.589	5.482
IR	2.203	1.221	-1.916
LMA	6.164	.180	5.710
LVIX	2.963	.381	2.261
FER	20.779	12.589	.009
EPU	4.929	.620	3.104

Notes: This table presents descriptive statistics (mean, standard deviation, minimum and maximum values) of log of sovereign credit default swaps (LCDS), log of gold price (LGP), log of stock exchange index (LSE), Real interest rate (IR), Log of MSCI ASIA index (LMA), log of Chicago Board Options Exchange market volatility (LVIX), foreign exchange rate (FER), Economic policy uncertainty index (EPU).

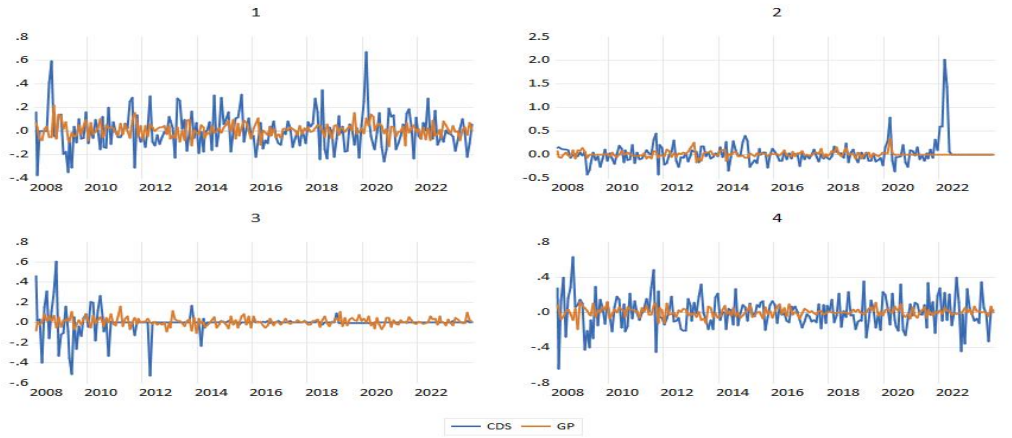
Table 1 displays descriptive statistics, including mean, standard deviation, minimum and maximum values of the variables such as logarithm of Credit Default Swap spreads (LCDS), Stock Exchange index (LSE), Gold Price (LGP), MSCI ASIA index (LMA), The Volatility Index (LVIX), Economic Policy Uncertainty index (LEPU), real interest rate (IR), and foreign exchange rate are summarized in these statistics.

The diagnostic test result of the Jarque-Bera shows a p-value of 0.358 and a Jarque-B statistic of 2.053, indicating that the null hypothesis is not rejected as the data is regularly distributed. In addition, there is no indication of serious multicollinearity based on the 1.40 mean Variance Inflation Factor (VIF). Furthermore, the Breusch-Pagan/Cook-Weisberg test p-value is 0.09 which is

significantly higher than the typical significance thresholds (e.g., 0.05), the homoskedasticity null hypothesis cannot be rejected.

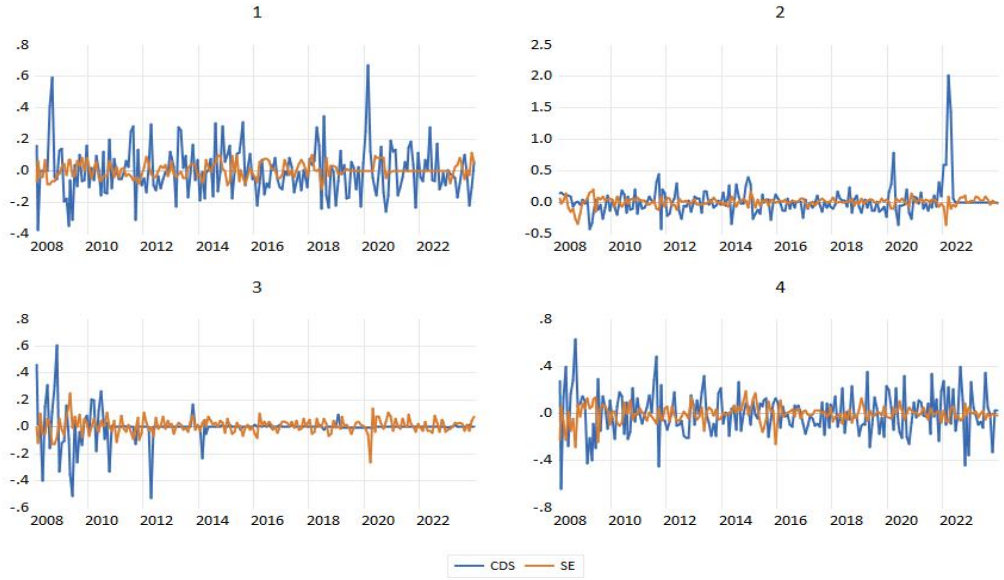
Figure 1: ***Graphical Presentation of Variables***

SCDS with Gold Price



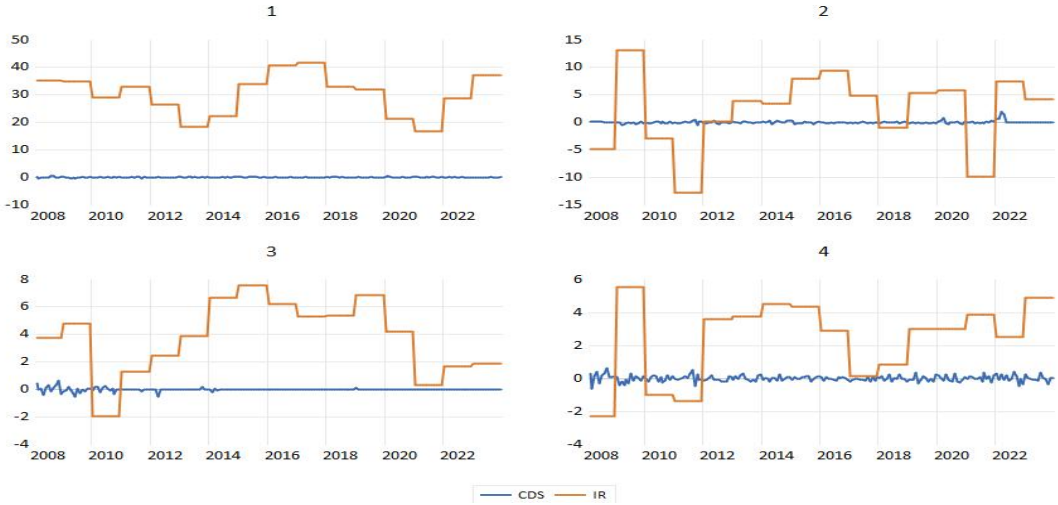
Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with log of gold price (LGP)

SCDS with Stock Exchange Index



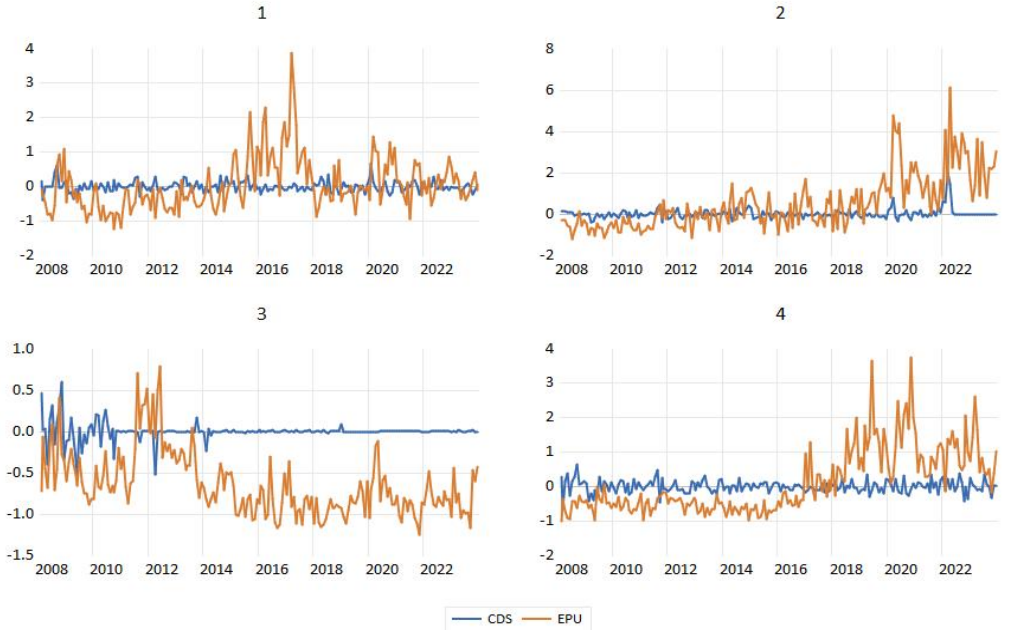
Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with log of stock exchange index (LSE)

SCDS with Real Interest Rate



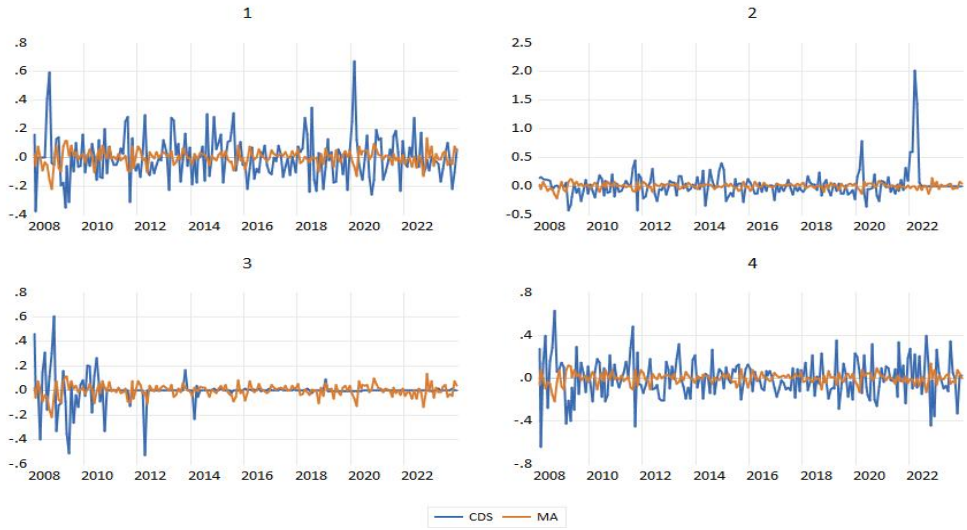
Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with real interest rate (IR)

SDCS with Economic Policy Uncertainty Index



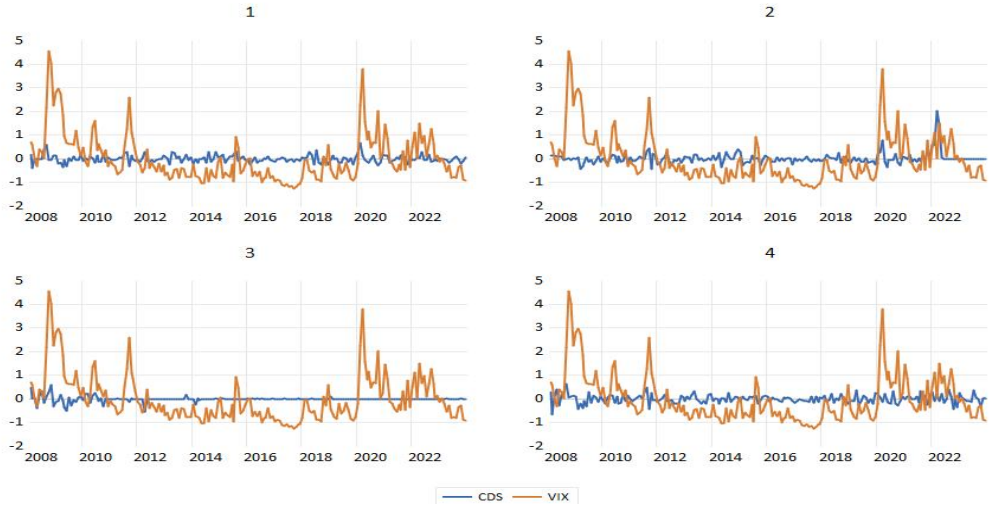
Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, and 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with log of Economic Policy Uncertainty index (LEPU)

SCDS with MSCI ASIA index



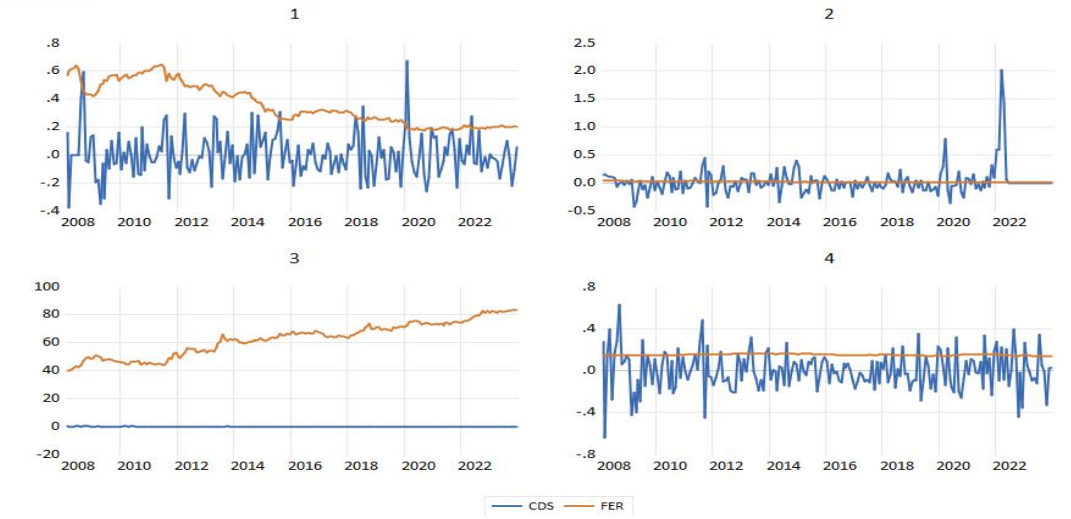
Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, and 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with log of MSCI ASIA index (LMA)

SCDS with The Volatility Index



Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, and 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with log of CBOE Volatility Index (LVIX)

SCDS with Foreign Exchange Rate



Notes: the graphical representation shows 1 as BRAZIL, 2 as RUSSIA, 3 as INDIA, 4 as CHINA of variables log of Sovereign CDS spread (LCDS) with foreign exchange rates (FER)

Figure 1 graphical analysis reveals that in the BRIC countries, most of the variables including the stock exchange index, gold prices, real interest rates, MSCI ASIA index, and foreign exchange rates have a negative relationship with sovereign credit default swaps (SCDS). However, The Volatility index and Economic Policy Uncertainty index (EPU) are positively related to SCDS. Panel data analysis methods have been applied to further understand these variables' influence on sovereign credit default swaps.

Table 2: ***Unit root test results***

Variables		***Pesaran-Shin (IPS)***		***Levin-Lin-Chu (LLC)***		
		Individual intercept with trend	***Individual intercept***	***Individual intercept with trend***	***Individual intercept***	***None***
CDS	**Level**	0.000	0.001	0.844	0.697	0.344
GP		0.603	0.348	0.741	0.228	0.998
SE		0.000	0.491	0.084	0.541	0.993
IR		0.528	0.660	0.576	0.834	0.984
MA		0.381	0.229	0.369	0.208	0.536
VIX		0.029	0.007	0.000	0.000	0.237

FER		0.908	0.998	1.000	0.955	0.833
EPU		0.000	0.053	0.000	0.035	0.677
CDS	**1st diff.**	0.000	0.000	0.004	0.001	0.000
GP		0.000	0.000	0.000	0.000	0.000
SE		0.000	0.000	0.047	0.006	0.000
IR		0.000	0.000	0.000	0.000	0.000
MA		0.000	0.000	0.000	0.000	0.000
VIX		0.000	0.000	0.000	0.000	0.000
FER		0.000	0.000	0.000	0.000	0.000
EPU		0.000	0.000	0.000	0.000	0.000

Notes: This table presents unit root test (Pesaran-Shin (IPS), Levin-Lin-Chu (LLC)) of sovereign credit default swaps (CDS), gold price (GP), stock exchange index (SE), Real interest rate (IR), MSCI ASIA index (MA), Chicago Board Options Exchange market volatility (VIX), foreign exchange rate (FER), Economic policy uncertainty index (EPU).

We employed Im-Pesaran-Shin (IPS) and Levin-Lin-Chu (LLC) is used to check the existence of both deterministic and stochastic tendencies (Iqbal et al., 2024). The results indicate in Table 2 that the majority of variables are stationary at 1st difference I(I) in both the LLC and IPS approach except VIX and EPU stationary at level I (0).

We have incorporated the below estimation model for analysis:

$$\boldsymbol{LCDS_{it} = \alpha + \beta_1 LGP_{it} + \beta_2 LSE_{it} + \beta_3 IR_{it} + \beta_4 LEPU_{it} + \beta_5 LMA_{it} + \beta_6 LVIX_{it} + \beta_7 FER_{it} + \mu it + \eta it + \in_{it}} \quad \textbf{(4.1)}$$

Where, log of credit default swap (LCDS), log of the gold price (LGP), stock exchange index (LSE), real interest rate (IR), Economic Policy Uncertainty index (LEPU), MSCI ASIA index (LMA), log of the volatility index (LVIX), and foreign exchange rate (FER). The parameters to be evaluated are denoted by ′s; the fixed effect on time is represented by ; which captures the time-invariant unknown effects of each nation . The model's functional form is linear, with no random positive value added to ensure non-negative values. This allows for logarithmic specification, except for real interest rates and foreign exchange rates.

Results of the Dynamic Panel data

Table 3 shows the models, including Pooled OLS, Fixed Effects, Random Effects, and GMM. The coefficient of the columns 1, 2, and 3 model displays the Pooled OLS,

fixed and random effects of sovereign CDS, the coefficient here is the percentage change in Sovereign CDS for a percentage difference in independent variables. Column 4 model displays the Generalized method of moments. Using GMM in this study is specifically useful because it helps to handle the endogeneity issue, where some variables are connected with the model's error term. For example, changes in the stock exchange index or foreign exchange rates could have an impact on sovereign CDS, yet it can also be influenced by economic uncertainty. It is effective in our model because it can use past values (lags) in instrumental variables to get consistent and unbiased estimates to handle complex relationships in panel data.

We employed the Hausman (1978) specification test. At 37.25, the test's $^{-}2$ value has a p-value (0.000). We took into consideration the fixed effect estimates as a result of the hypothesis' rejection. The fixed effects regression results in Table 3 (column 2) provide significant insights into the relationships between the explanatory variables and sovereign credit default swaps.

The GMM model is relatively resilient, according to diagnostic testing in Table 3. There is first-order autocorrelation, according to the Arellano-Bond test for AR (1) in first differences, which is significant (p = 0.023). However, the AR (2) test is not significant (p = 0.174), indicating that there is no second-order autocorrelation. Despite the large number of instruments utilized, the Hansen test's p-value of 0.714 confirms the validity of the instruments which demonstrates that the instruments in the model are a good fit.

Table 3: ***Results from Pooled-OLS, Fixed Effects, Random Effects, GMM***

VARIABLES	Model 1 (OLS)	Model 2 (FE)	Model 3 (RE)	Model 4 (GMM)
LGP	0.163***	-0.268**	-0.139**	-0.213***
	(0.005)	(0.034)	(0.027)	(0.000)
LSE	0.189***	0.101***	0.045**	-0.918**
	(0.007)	(0.000)	(0.027)	(0.050)
IR	0.013***	0.103***	0.001***	0.513***
	(0.000)	(0.000)	(0.008)	(0.000)
LMA	-0.373***	-0.187*	0.125*	-0.372**
	(0.000)	(0.055)	(0.055)	(0.023)

LVIX	0.213**	0.207**	0.199**	0.212***
	(0.026)	(0.020)	(0.021)	(0.000)
FER	0.006***	0.019***	0.017***	0.406***
	(0.001)	(0.000)	(0.001)	(0.000)
LEPU	0.144***	0.165***	0.144***	0.265***
	(0.000)	(0.000)	(0.000)	(0.000)
C	3.593***	4.783***	4.577**	7.193***
	(0.000)	(0.000)	(0.034)	(0.000)
Hausman Test		37.25		
AR (1)				0.023
AR (2)				0.174
Hansen Test				0.714
R-squared	0.485	0.502	0.465	0.708
Observations	768	768	768	768
Number of countries	4	4	4	4

Notes: This table presents a regression analysis log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), C is constant, and the observations are 786 from monthly data (2008 to 2023). Standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

As per table 3, the determinants of domestic factor results are as follows; 1% higher in gold price is associated with a decrease of 0.26% in Sovereign CDS spread in fixed effect and the GMM model also confirms as per coefficient -0.213 value, according to the result the inverse relationship may help investors understand that higher gold prices can reduce perceived credit risk to adjust their portfolios in these economies, the result is consistent with earlier research (Malhotra & Corelli, 2018; Yang et al., 2019). The Stock exchange index is also reflecting a negative effect, this implies a 1% increase in stock markets is associated with a decrease of 0.10% in Sovereign CDS. It suggests that if stock markets perform well may reduce the spread of sovereign credit default swaps. In addition, the GMM result also indicates a

negative relationship as of coefficient -0.918 value. This may help investors to trust that stock market strength may raise sovereign credit which would lower risk premiums in these economies. The finding is supported by study of Muvunza & Jiang, (2021); Kwon, (2022). These results highlight an inverse relationship between gold price and the Stock exchange index on credit risk.

The real interest rate result is statistically significant, suggesting a 1% increase is associated with an increase of 0.10% in Sovereign CDS spread, and the GMM result shows the same finding as the coefficient value is 0.513, it may indicate that a rise in the cost of borrowing, default risk and slow down economic growth would increase sovereign credit default swaps spreads in emerging markets due to high perceived risk of investors. The finding is consistent with Hoek et al. (2022). Furthermore, the economic policy uncertainty index result of fixed effect and GMM indicates a positive influence on sovereign CDS, suggesting a 1% increase in economic uncertainty is associated with increased 0.16% and 0.26% in sovereign CDS. It shows that perceptions of credit risk may increase by policy uncertainty. Given that growing concerns about economic policy result in higher risk premiums, this emphasizes the effect of macroeconomic uncertainty on credit markets. This finding is consistent with Pan et al. (2024)

The determinants of global factor results are as follows; MSCI ASIA index result of FE and GMM indicates a significant negative relationship with Sovereign CDS, suggesting a 1% increase in market activity in Asia is associated with a decrease of 0.18% and 0.37% in sovereign CDS, it emphasizes concerns about sovereign credit when Asian market performs well because it may spillover impact of this market on the perception of the global credit risk. The consistent finding with the study of Muvunza & Jiang, (2021). In addition, the FER statistically significant result in both FE and GMM suggests a 1% increase in the foreign exchange rate associated with a decrease of 0.01% and 0.40% in Sovereign CDS. It heightened that currency appreciation may stabilize sovereign credit risk. Thus, results are deviating from the research of Augustin et al. (2020); Ibhagui, (2021). However, VIX shows a significant positive effect on Sovereign CDS. This result of FE and GMM indicates that 1% higher market volatility is strongly associated with increased 0.20% and 0.21% in sovereign credit default swaps. It enhanced the crucial role of global market volatility in determining sovereign credit risk for investors understanding of the global market. This finding is consistent with Muvunza & Jiang, (2021); Noyan & Özpençe, (2023).

The empirical findings of both methods i.e. panel data models and Generalized Method of Moments suggested that different economic and market aspects substantially influence sovereign credit risk as reflected by sovereign credit default swaps. These results explored a complex association between the determinants of sovereign risk management and global financial markets, enhancing the importance of the asset market in economic and macroeconomic factors in the risk of sovereign credit. These approaches provide insights about sovereign risk to validate previous studies but also give novel insights into how market volatility, currency stability, and economic uncertainty impact sovereign credit risk.

Results of the Panel Quantile Regression

According to the empirical findings presented in Table 4, the Panel quantile regression quantiles are shown in columns 1 to 3, Q25 for the bear market, Q50 for the normal market, and Q75 for the bull market. The OLS regression shown in Column 4 summarizes the average association among the explanatory variables and the SCDS spreads changes but it does not allow the association to change across varying market conditions, due to this reason panel quantile regression approach used for deeper understanding of how the domestic and global aspects impact sovereign credit default swap spreads across various market conditions.

Table 4: ***Result of Panel Quantile Regression (Bull, Bear and Market Average)***

VARIABLES	Bear Market (Q_{25})	Normal Market (Q_{50})	Bull Market (Q_{75})	Model 4 (OLS)
LGP	-0.476***	-0.466***	-0.471***	0.163***
	(0.000)	(0.000)	(0.000)	(0.005)
LSE	-0.014	0.019	0.001	0.189***
	0.513	0.339	0.924	(0.007)
IR	0.082***	0.021**	0.026***	0.013***
	0.000	0.013	0.002	(0.000)
LEPU	0.070**	0.191***	0.379***	0.144***
	0.036	0.000	0.000	(0.000)
LMA	-0.404**	-0.406***	-0.275**	-0.373***
	0.024	0.013	0.035	(0.000)
LVIX	0.012	0.036	0.400***	0.213**

	0.240	0.573	0.000	(0.026)
FER	0.070***	0.009***	0.838***	0.006***
	0.000	0.000	0.000	(0.001)
C	9.780***	9.008***	3.912***	3.593***
	0.000	0.000	0.000	(0.000)
Observations	768	768	768	768

Notes: This table presents a panel quantile analysis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), C is constant, and the observations are 786 from monthly data (2008 to 2023). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

We can draw some exciting results from Table 4. We observe gold price has a significant association with SCDS spreads across bull, normal and bear markets, it indicates that a higher price of gold reduces SCDS spreads in emerging markets which reflects gold as a haven asset against perceived sovereign risk. Moreover, real interest rate and economic policy uncertainty index have a significantly positive association with SCDS spreads in all market conditions. It indicates that rising in interest rates and economic policy uncertainty increase SCDS spreads in emerging economies especially in bearish markets (Q_{25}) interest rate influence is strong, reflecting debt service costs sensitivity during market downturns elevates perceived sovereign risk but the economic policy uncertainty strongly influences on SCDS spreads in Bullish market (Q_{75}) which reflects that managing uncertainty is important to control sovereign risk where investor confidence is at stake. However, the stock exchange index result indicates that SCDS spreads are not significantly influenced by stock market performance across all market conditions.

The result of the MSCI Asia Index has a significantly negative association with SCDS spreads across various market conditions. It indicates that improving Asia equity market performance is crucial to reducing perceived sovereign risk in challenging periods. Moreover, the VIX has a positively significant effect on SCDS spread in a bullish market condition. This finding indicates that an increase in global financial uncertainty in the VIX index leads to an increase in SCDS spread changes

when the sovereign CDS market is bullish, which is consistent with Naifar, (2020). Lastly, Foreign exchange rates are positively associated with SCDS spreads in all market conditions. This finding shows that in a bearish market ((Q_{25}) currency depreciation would downturn economic conditions by reducing the confidence of investors and increasing cost of imports, although a bullish market (Q_{75}) strong foreign exchange rates to support economic growth by encouraging investment and trade.

Table 5a: ***Result of the Subprime mortgage crisis***

VARIABLES	**Bear Market (Q_{25})**	**Normal Market (Q_{50})**	**Bull Market (Q_{75})**	**Model 4 (OLS)**
LGP	-0.663***	-0.745***	-0.842***	-0.784***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	-0.075***	-0.119***	-0.152***	-0.114***
	(0.006)	(0.000)	(0.000)	(0.000)
IR	7.220**	-2.040	-3.650	-2.770
	(0.024)	(0.728)	(0.527)	(0.598)
LEPU	0.224	0.272**	0.293**	0.221***
	(0.170)	(0.015)	(0.019)	(0.007)
LMA	-0.757*	-0.626	-0.889*	-0.641**
	(0.079)	(0.139)	(0.060)	(0.041)
LVIX	0.439***	0.469*	0.169	0.375*
	(0.000)	(0.096)	(0.603)	(0.070)
FER	0.030***	0.036***	0.042***	0.037***
	(0.000)	(0.000)	(0.000)	(0.000)
C	11.799***	12.031***	15.411***	12.937***
	(0.003)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the Subprime mortgage crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), C is constant, and the observations are 96 from monthly data (2008 to 2009). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

For the BRIC economies (Table 5a) in the era of the subprime mortgage crisis has explored that the gold price, stock market performance and foreign exchange rate had significant roles in sovereign credit default swap spreads in bull, normal and bear market conditions, indicating their crucial importance at the duration of the crisis. The real interest rate had a significant influence only in bear markets which enlightened their relevancy in economic downturns. Meanwhile, the EPU index was significantly positive in normal and bull markets, indicating its crucial impact during growth and recovery phases. Moreover, market volatility and the MSCI Asia index became more significant in bear markets, reflecting their importance during financial stress.

Table 5b: ***Result of the Subprime Mortgage Crisis***

VARIABLES	Bear Market (Q_{25})	Normal Market (Q_{50})	Bull Market (Q_{75})	Model 4 (OLS)
LGP	-0.493***	-0.428***	-0.441***	-0.533***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	0.000	0.024	0.003	-0.031
	(0.665)	(0.217)	(0.815)	(0.145)
IR	1.480**	1.940**	2.460***	1.210
	(0.026)	(0.047)	(0.000)	(0.300)
LEPU	0.087**	0.197***	0.436***	0.566***
	(0.017)	(0.000)	(0.000)	(0.000)
LMA	-0.275*	-0.264	0.342**	-0.291
	(0.061)	(0.189)	(0.016)	(0.176)

LVIX	0.111**	0.091	0.473***	0.192*
	(0.036)	(0.148)	(0.000)	(0.058)
FER	0.013***	0.008***	0.007***	0.015***
	(0.000)	(0.000)	(0.000)	(0.000)
Crisis2008	-0.059	0.142	0.198	-0.005
	(0.442)	(0.190)	(0.132)	(0.964)
C	9.412***	8.329***	3.704***	7.810***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the Subprime mortgage crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), crisis2008 captures crisis in 2008 to 2009 as dummy variable, C is constant, and the observations are 96 from monthly data (2008 to 2009). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

We use crisis2008 as a dummy variable with 0 for pre-crisis and 1 for crisis and aftermath. As per the result of Table 5b the subprime mortgage crisis did not have a direct effect on sovereign credit default swap spreads changes in any market conditions. This means other financial and global factors in the model might better explain Sovereign CDS' spread changes in the period of crisis.

Table 6a: ***Result of the US-China Trade War Crisis***

VARIABLES	**Bear Market (Q_{25})**	**Normal Market (Q_{50})**	**Bull Market (Q_{75})**	**Model 4 (OLS)**
LGP	-0.697***	-0.941***	-1.115***	-0.927***
	0.000	0.000	0.000	0.000
LSE	0.039*	0.027	0.051	0.047***

	0.053	0.124	0.140	0.010
IR	0.015***	0.011***	0.013***	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)
LEPU	-0.215**	-0.131	-0.001	-0.155**
	(0.033)	(0.240)	(0.986)	(0.026)
LMA	-1.264	-1.449**	-0.970*	-1.384***
	(0.126)	(0.021)	(0.069)	(0.008)
LVIX	0.025	-0.225	-0.156	-0.118
	(0.888)	(0.124)	(0.343)	(0.375)
FER	0.013***	0.020***	0.026***	0.018***
	(0.001)	(0.000)	(0.000)	(0.000)
C	17.438***	21.090***	19.137***	20.270***
	(0.009)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the US-China trade war crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), C is constant, and the observations are 96 from monthly data (2018 to 2019). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

For the BRIC economies (Table 6a), the crisis of the US-China trade war investigated that sovereign CDS were strongly affected by gold prices, real interest rates, and foreign exchange rates across all markets. MSCI ASIA had negative significance in normal and bull markets, indicating improving investor confidence. The stock market performance and economic policy uncertainty index played a significant role in the bear market to influence Sovereign CDS spreads. Reflecting uncertainty heightened perceived sovereign risk in economic downturns. Thus, market

volatility had no significant role in this era of crisis in BRIC economies to effect sovereign CDS spread.

Table 6b: ***Result of the US-China trade war crisis***

VARIABLES	Bear Market (Q_{25})	Normal Market (Q_{50})	Bull Market (Q_{75})	Model 4 (OLS)
LGP	-0.488***	-0.452***	-0.494***	-0.545***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	-0.010	0.019	0.002	-0.033
	(0.635)	(0.389)	(0.857)	(0.114)
IR	1.770***	1.510**	1.970***	1.210
	(0.002)	(0.072)	(0.000)	(0.267)
LEPU	0.093**	0.185***	0.450***	0.592***
	(0.019)	(0.000)	(0.000)	(0.000)
LMA	-0.194	-0.340*	0.327**	-0.063
	(0.191)	(0.066)	(0.042)	(0.762)
LVIX	0.113**	0.129**	0.531***	0.174*
	(0.032)	(0.047)	(0.000)	(0.062)
FER	0.012***	0.009***	0.010***	0.015***
	(0.000)	(0.000)	(0.000)	(0.000)
Crisis2018	-0.160**	-0.039	-0.147**	-0.470***
	(0.040)	(0.442)	(0.040)	(0.000)
C	8.973***	8.909***	4.023***	6.780***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the US-China trade war crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), crisis2018 as dummy variable, C is constant, and the observations are 96 from monthly data (2018 to 2019). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

We employ crisis2018 as a dummy variable, with 0 representing before the crisis and 1 representing during and after the crisis. As Table 6b shows, the US-China trade war crisis did not directly affect changes in sovereign credit default swap spreads in the normal market. However, it negatively influenced sovereign CDS spreads in bull and bear market conditions, reflecting that SCDS spread reduction at the time of the US-China crisis especially in bull and bear market scenarios. This means other financial and global factors in the model might better explain Sovereign CDS' spread changes in normal markets during the crisis period.

Table 7a: ***Result of the COVID-19 pandemic crisis***

VARIABLES	**Bear Market (Q_{25})**	**Normal Market (Q_{50})**	**Bull Market (Q_{75})**	**Model 4 (OLS)**
LGP	-1.388***	-2.099***	-1.981***	-1.449***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	0.011	-0.001	-0.006	-0.014
	(0.794)	(0.957)	(0.796)	(0.613)
IR	0.061***	0.053***	0.055***	0.049***
	(0.000)	(0.000)	(0.000)	(0.000)
LEPU	-0.193**	-0.109	-0.061	-0.108
	(0.031)	(0.223)	(0.550)	(0.262)
LMA	-0.359	0.226	0.557	0.508
	(0.410)	(0.628)	(0.257)	(0.253)
LVIX	-0.056	0.046	0.041	0.088
	(0.739)	(0.787)	(0.802)	(0.582)
FER	0.032***	0.047***	0.043***	0.032***

	(0.000)	(0.000)	(0.000)	(0.000)
C	19.523***	22.641***	19.807***	15.173***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the COVID-19 pandemic crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), C is constant, and the observations are 96 from monthly data (2020 to 2021). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

In Table 7a, the results of the COVID-19 pandemic crisis on the BRIC economies have explored gold prices, real interest rates, and foreign exchange rates had strong significance in bear, normal and bull markets to influence sovereign CDS spread. Meanwhile, EPU was significant in the bear markets, indicating its impact on economic downturns. However, MSCI ASIA performance, market volatility and stock market performance were not significant across all market conditions. These findings underline the dominancy of interest rates, gold prices and exchange rates in shaping the perception of sovereign risk in BRIC at the time of the pandemic crisis.

Table 7b: ***Result of the COVID-19 Pandemic Crisis***

VARIABLES	**Bear Market (Q_{25})**	**Normal Market (Q_{50})**	**Bull Market (Q_{75})**	**Model 4 (OLS)**
LGP	-0.486***	-0.447***	-0.469***	-0.518***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	-0.007	0.016	0.002	-0.036*
	(0.719)	(0.177)	(0.984)	(0.078)
IR	1.810***	1.440***	2.190***	1.500

	(0.002)	(0.000)	(0.000)	(0.166)
LEPU	0.097**	0.200**	0.429***	0.574***
	(0.018)	(0.012)	(0.000)	(0.000)
LMA	-0.156	-0.224	0.467**	0.692***
	(0.360)	(0.288)	(0.015)	(0.007)
LVIX	0.164***	0.200***	0.633***	0.578***
	(0.006)	(0.000)	(0.000)	(0.000)
FER	0.012***	0.009***	0.009***	0.014***
	(0.000)	(0.092)	(0.000)	(0.000)
Crisis2020	-0.292**	-0.145	-0.274**	-0.798***
	(0.020)	(0.435)	(0.025)	(0.000)
C	8.569***	8.047***	2.963***	1.767
	(0.000)	(0.000)	(0.000)	(0.216)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the COVID-19 pandemic crisis (bear, normal and bull markets) log of sovereign credit default swaps (LCDS), the log of gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of Economic Policy Uncertainty index (LEPU), crisis2020 as dummy variable, C is constant, and the observations are 96 from monthly data (2020 to 2021). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

We have used crisis2020 as a dummy variable for the COVID-19 pandemic, with 0 for pre-crisis and 1 for crisis and aftermath. As Table 7b shows, the crisis shows a negative influence on sovereign credit default swaps spread in bear and bull market scenarios, reflecting a decrease in SCDS spreads in volatile markets during

crisis periods. However, normal market results suggest the crisis had a less noticeable influence on SCDS spread during stability in the market.

Table 8a: ***Result of the Russia-Ukraine War Crisis***

VARIABLES	Bear Market (Q_{25})	Normal Market (Q_{50})	Bull Market (Q_{75})	Model 4 (OLS)
LGP	-7.032***	-7.168***	-6.778***	-6.698***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	-0.061	-0.042	-0.067	-0.060
	(0.384)	(0.468)	(0.195)	(0.168)
IR	-0.038***	-0.033***	-0.025***	-0.027***
	(0.000)	(0.000)	(0.002)	(0.001)
LEPU	0.097	0.146	0.516***	0.339*
	(0.676)	(0.530)	(0.000)	(0.078)
LMA	-2.339*	-0.804	0.681	-2.847***
	(0.071)	(0.484)	(0.515)	(0.001)
LVIX	-1.297***	-0.878***	-1.035***	-1.179***
	(0.001)	(0.001)	(0.000)	(0.000)
FER	0.136***	0.137***	0.138***	0.134***
	(0.000)	(0.000)	(0.000)	(0.000)
C	86.451***	78.504***	73.013***	84.346***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the Russia-Ukraine War crisis (bear, normal, and bull markets) log of sovereign credit default swaps (LCDS), the log of the gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of the MSCI ASIA index (LMA), the log of Chicago Board Options

Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of the Economic Policy Uncertainty index (LEPU); C is constant, and there are 96 observations derived from monthly data (2022 to 2023). Standard errors are in parentheses: *** p<0.01, ** p<0.05, * p<0.1

For the BRIC economies (Table 8a), the crisis of the *Russia-Ukraine War crisis* investigated that sovereign CDS were strongly affected by gold prices, real interest rates, foreign exchange rates, and market volatility (VIX) across all markets. The MSCI ASIA had significance in bear markets. The EPU had strong significance only in Bull markets, reflecting its growing role in clear policy making during optimistic conditions. Thus, stock market performance had no significant role in this era of crisis in BRIC economies to influence sovereign CDS spread. These aspects examined how geopolitical issues shaped perceptions of sovereign risk.

Table 8b: ***Result of the Russia-Ukraine War crisis***

VARIABLES	**Bear Market (Q_{25})**	**Normal Market (Q_{50})**	**Bull Market (Q_{75})**	**Model 4 (OLS)**
LGP	-0.523***	-0.480***	-0.552***	-0.672***
	(0.000)	(0.000)	(0.000)	(0.000)
LSE	-0.027	0.018	-0.009	-0.037**
	(0.185)	(0.400)	(0.524)	(0.049)
IR	1.610***	1.530*	1.490***	7.540
	(0.003)	(0.055)	(0.006)	(0.443)
LEPU	0.051	0.171***	0.409***	0.452***
	(0.207)	(0.000)	(0.000)	(0.000)
LMA	-0.731***	-0.441**	-0.156	-0.689***
	(0.001)	(0.014)	(0.359)	(0.000)
LVIX	-0.049	0.110	0.359***	0.012
	(0.507)	(0.106)	(0.000)	(0.880)
FER	0.013***	0.009***	0.012***	0.017***
	(0.000)	(0.000)	(0.000)	(0.000)
Crisis2022	0.332***	0.340**	0.559***	1.286***
	(0.000)	(0.040)	(0.000)	(0.000)

C	12.693***	9.767***	7.637***	11.982***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	96	96	96	96

Notes: This table presents a panel quantile analysis of the Russia-Ukraine War crisis (bear, normal, and bull markets) log of sovereign credit default swaps (LCDS), the log of the gold price (LGP), the log of stock exchange index (LSE), the real interest rate (IR), the log of the MSCI ASIA index (LMA), the log of Chicago Board Options Exchange market volatility (LVIX), the foreign exchange rate (FER), the log of the Economic Policy Uncertainty index (LEPU); crisis2022 as dummy variable, C is constant, and there are 96 observations derived from monthly data (2022 to 2023). Standard errors are in parentheses: *** p<0.01, ** p<0.05, * p<0.1

We used crisis2022 as a dummy variable, with 0 for pre-crisis and 1 for crisis and aftermath. As Table 8b shows, the Ukraine-Russia war crisis shows a positive and significant influence on sovereign credit default swaps spread across market scenarios, reflecting an increase in SCDS spreads in volatile and stable markets during this crisis period.

Panel quantile regression has also explored multiple global financial crises including the subprime mortgage crisis, the US-China trade war, the COVID-19 pandemic and the Ukraine-Russia crisis to understand local and global factors that influenced changes in sovereign CDS spread in BRIC economies. The results have explored in local aspects that gold prices had played a crucial role to influence changes in sovereign CDS spreads in global financial crises in bull, normal and bear markets. The real interest rate had a significant impact on changes in sovereign CDS spread in most of the crisis across all market conditions except in the subprime mortgage crisis because it was significant in only the bear market. Moreover, the economic policy uncertainty index had a significant impact on sovereign CDS spreads in the following crises such as the subprime mortgage crisis in normal and bear markets, the US-China trade war and the COVID-19 pandemic in bear markets, and the Ukraine-Russia crisis in bull market. In contrast stock market performance had minimal influence on the changes in sovereign CDS spread in all global financial crises in various market conditions.

In the global aspect foreign exchange rates had played a strong role in influencing changes in sovereign CDS spreads in global financial crises across all market conditions. The MSCI ASIA performance had a significant impact on sovereign CDS spread change in most of the global financial crises except the COVID-19 pandemic in different market conditions. Lastly, market volatility had a significant influence on some global financial crises except the US-China trade war and the COVID-19 pandemic in some market conditions.

The multiple global financial crises were included as dummy variables, according to the results in Tables 5b, 6b, 7b and 8b indicating that sovereign CDS spread was mostly affected by bull and bear markets in the global financial crisis. Moreover, the results of these tables are similar to the Tables 5a, 6b, 7b and 8b of explanatory variables in the study during the financial crisis.

Conclusion

The global financial crisis of the subprime mortgage crisis, the COVID-19 crisis, the China-US trade war, and the Russia-Ukraine war the alarming widening of the sovereign credit default swaps spread in the credit market have renewed the interest in examining drivers of sovereign credit risk in the markets of emerging economies. Sovereign credit default swap spreads represent market participants' evaluations of the creditworthiness and financial condition of creditor economies. In this study, we examined the effects of local and global aspects on Sovereign CDS spreads in the case of BRIC countries, which are Brazil, Russia, India, and China. We used country-specific, global financial and global uncertainty factors to investigate variation in sovereign CDS.

Previous studies mostly focused on sovereign credit default swaps with their association with other factors. We build on the insights of previous studies (Eyssell et al., 2013; Blommestein et al., 2016; Augustin et al., 2020; Ibhagui, 2021; Muvunza & Jiang, 2021; Kartal et al., 2023, Pan et al., 2024) to examine relationship between sovereign CDS with currency stability, market volatility, and economic uncertainty. We analyzed monthly data from 2008 to 2023, extracted from Refinitiv Eikon, encompassing BRIC economies. We applied static panel data i.e. Pooled OLS, fixed and random effects, and dynamic panel data i.e. the Generalized Method of Moments (GMM). In addition, the panel quantile regression approach has also been used to get insights into variations in market conditions i.e. Bull market, normal market, and Bear market.

Empirically, the fixed effect and GMM results confirm that most of the determinants have a negative association. However, the Volatility Index and EPU index have a positive impact on sovereign CDS in emerging markets. Panel Quantile regression results explored that variables have a significant influence on SCDS in various market conditions except VIX significantly influences SCDS only in the bullish market. However, the stock exchange index has no significant influence on SCDS across market conditions.

The findings of global financial crisis periods revealed important financial and economic implications. In the case of BRIC, gold's capacity to serve as a haven could have a financial impact during difficult market periods. When traditional assets (bonds and stocks) see significant drops, gold might offer an additional hedge against losses due to the "financialization" of the commodity markets. As a result, BRICS helps investors to avoid downside risks in their investments (Mensi, 2014). Real interest rates are an effective tool that policymakers can employ to control perceived sovereign risk during market stress. In addition, foreign exchange rates have a strong role in underscoring the significance of stable currency policies in eliminating sovereign risk. Although, economic policy uncertainty might increase the risk due to unpredictable responses needs clear strategies to economic uncertainty issues. Moreover, the MSCI Asia market performance has significant influence in most crises indicating regional markets interconnectedness and their impact on perceived sovereign risk. On the other side, market volatility significance highlights its role as a risk driver in crisis, with implications for making targeted policies to address uncertain markets during economic shocks and geopolitical shocks. Lastly, the stock market performance had minimal influence on the spread of sovereign CDS reflecting that perceived sovereign risk does not directly affect equity markets during global financial crises. These comprehensive insights guide investors, economists and policymakers in prioritizing macroeconomic stability to effectively manage perceived sovereign risk. Lastly, The crisis period results indicate that sovereign CDS spread was significantly affected mostly by bull and bear markets in the global financial crisis.

This work examined on emerging markets may restrict conclusion generalizability. Hence, it gives vital insights into amplifying sovereign CDS spreads pricing and management of risk measurement. The research originality is how generalized method of moments (GMM)) and Panel Quantile regression are applied to

provide new insights into the factors that influence sovereign credit default swap spreads in distinctive market circumstances. This profound for more comprehensive understanding towards sovereign credit default swaps function in credit risk control at the national and international level

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