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Impact of COVID-19 on sovereign risk of emerging markets and developing Economies (EMDES)

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Abstract

This paper examines the impact COVID-19 has on the sovereign risk of emerging and developing markets and developing economies (EMDES) in ten selected West African countries. The study revealed that the daily documented cases and credit default swap (CDS) spread had an inverse relationship. This points to the fact that governments are likely to default because the available resources will be spent on catering to patients, which would increase their tendency to default. An OLS model was used to estimate the variables; this revealed that there is a higher CDS spread among emerging economies and markets. There exists a positive correlation between the explanatory variable and the explained variable, and this is an indication that the higher the border closure restrictions, the more COVID-19 is controlled, which results in a higher CDS spread among emerging economies and markets. The result concludes that the prevalence of this in these emerging and developing markets and developing economies reduces productivity, hence increasing the danger of default.

Keywords: Sovereign; Risk; Emerging Market; Developing Economies

1. Introduction

As the unique coronavirus disease of 2019 (COVID-19) creeps over the planet's huge population, the world has witnessed an unparalleled economic shock. COVID-19, which was identified in Wuhan, spread fast throughout the world. To an extent, the emerging markets and developing economies (EMDEs) were not excluded. According to the World Health Organization (WHO), globally, as of 29th December 2020, the COVID-19 reported cases stood at 79 million with over 1.7 million deaths since the start of the pandemic. Many low-income countries, particularly those in Latin America, had terrible COVID-19 outbreaks. Chile, Peru, Brazil, and Colombia each had more than 10,000 confirmed cases per million people, among the worst in the world (Wolf, 2020). The first case of COVID-19 in West African countries was recorded in Nigeria at the end of February 2020. The pandemic struck all of the region's countries in less than a month. Following that, the region was not spared from successive waves of epidemics, albeit at a lower frequency - four waves rather than the five typically observed in the rest of the world - but, more importantly, on a smaller scale.

As the pandemic hit and there were increasingly recorded death cases, stringent lockdowns, and other restrictions were put in place, and economic activity came to a halt. This action caused an unprecedented macro-financial shock and severely strained government budgets across the world. The world's economies and markets were and are still greatly hit and are experiencing the deepest recession since the Great Depression in the 1930s. Although the COVID-19 pandemic did not specifically affect some emerging countries, particularly West African countries, it had a significant impact on their markets and economies as well. Being the last region to register COVID-19 cases, Africa was already experiencing the consequences mainly through its trade links with the European Union (EU), United States of America (USA), and China, resulting in dwindling markets for African exports (Gondwe, 2020). EMDEs generally are more

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vulnerable to external shocks, in part because of mounting debt, weakening demand for commodity exports, and slower underlying domestic growth (Kose & Ohnsorge, 2020). Weaker economic conditions, heightened risk aversion, and uncertainty surrounding the COVID-19 pandemic have led to a surge in credit default swap (CDS) spreads—a market-implied comparable indicator of sovereign credit quality and default risk. On average, the cost of insuring against sovereign default over five years increased by as much as 39 basis points for advanced economies and 770 basis points for developing countries in the first half of 2020 (Cevik & Öztürkkal, 2020). In a Chicago Booth IGM’s Economic Experts Panel, the majority of polled economists agreed that the “economic damage from the virus and lockdowns ultimately fell disproportionately hard on low and middle-income countries (Goldberg & Reed, 2020).

Despite relatively low fiscal stimulus, most emerging markets face much higher debt burdens due to the loss of revenue, which adds to risks (Wolf, 2020). A report, completed in partnership with the West Africa Sub-Regional Office for the United Nations Economic Commission for Africa (UNECA) and the United Nations World Food Programme (WFP), indicates that the proportion of people in the region living with less than \$1.90 a day increased from 2.3 percent in 2020 to 2.9 percent in 2021 (Gouro, 2022). The debt burdens of countries in the region have also increased in the context of slow economic recovery, shrinking fiscal space, and weak resource mobilization. It is clear to note that for a nation’s government with less revenue, there is a higher potential for them to default on its sovereign debt by failing to meet its interest or principal payments which makes them risky.

Against this backdrop, is what has led to a fast-growing body of literature on the impact of COVID-19 on emerging economies and emerging markets. Fender, Hayo, & Neuenkirch (2012) used daily data on emerging-market CDS spreads over the 2002-2011 period and found a close relationship with global and regional risk premiums, especially during periods of crisis. Schoenfeld (2020) examined buy-and-hold asset returns and found a systematic underestimation of the COVID-19 risk in portfolio management. El Fayoumi & Hengge (2021) conducted a study on capital markets, COVID-19, and policy measures using high-frequency data and showed that the pandemic and associated policy responses have contributed to the large wave of capital reallocation between markets, asset classes, and industries. Though several studies on the impact of COVID-19 on various economies and markets have been conducted using various methodologies, a significant number of them have failed to consider the impact of COVID-19 on emerging markets taking into account the presence of lock-down restrictions, the number of deaths recorded quarterly, and the presence of border closure. The paper fills this gap by conducting an empirical analysis of the impact of the COVID-19 crisis on sovereign risk in emerging countries specifically in the West African nations using the number of recorded deaths cases monthly, the number of cases recorded monthly, the presence of lockdowns monthly, and the presence of border closure monthly in selected emerging countries as variables for measuring COVID-19 on Debt to GDP ratio, which measures sovereign risk.

2. Literature review

2.1. Concepts of COVID-19 and Sovereign Risk

2.1.1. About COVID-19

Coronaviruses are a group of viruses belonging to the family of Coronaviridae, which infect both animals and humans (WHO, 2019). The virus was identified in the city of Wuhan in the year 2019, and it went on to disrupt a large number of economic activities by imposing rigorous lock-down measures on practically all commercial activities. As a result of this activity, numerous governments were forced to implement measures such as lockdowns, border closures, and the like to prevent the spread of the virus.

2.1.2. COVID-19 variables used for the studies

- *Daily deaths:* As the COVID-19 pandemic hit the world, it resulted in several deaths recorded daily which reduced the human capital of countries. The West African countries, which are the main study areas for this work were not left out. Even though they recorded very few daily death cases as compared to the developed countries, their economies, and markets have been heavily hit by the virus. As the human resources reduce, it also causes productivity to reduce and it goes a long way to affect the income of the economy. Rocco et al (2021), confirm that both mortality and morbidity hurt GDP per capita growth. The effect of reducing mortality by 10 percent is that of adding *at least* 9.6 percentage points to GDP per capita growth over about one-quarter century, according to the bounding strategy.
- *Daily Recorded Cases:* Daily confirmed cases are the number of people who have tested positive for the coronavirus recorded daily. For every case, it is recorded on a country’s health ministry’s website daily. This announcement at a point led to *Daily Lockdowns:* Many countries implemented rigorous legislative responses,

such as lockdowns and social isolations, to reduce the virus's spread. These policies immediately reduced business revenues and household incomes, which hurt the economy and national markets. As business revenues and household incomes fall, so does the level of taxation and GDP, making it a high-risk country to lend to.

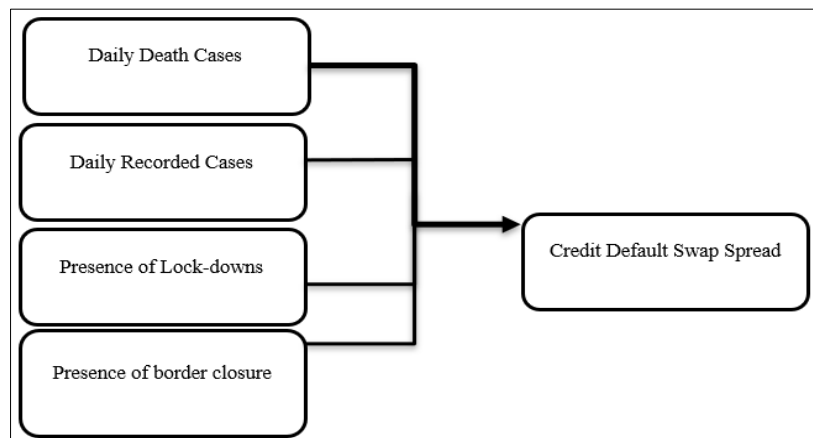
- *Presence of Border Closure:* The COVID-19 pandemic led to several restrictions and the closure of borders was one of those. When there were closures of borders, it resulted in a global fall in demand, and even countries that avoided the worst outbreaks domestically experienced a weakened export which affected the revenues of these economies.

2.1.3. About Sovereign risk

Sovereign Risk, also known as Country Risk, is the risk of default in meeting the debt obligation by a Country. Using a balance sheet approach, sovereign risk can be defined as the probability of a significant deterioration of the sovereign's balance sheet, either via increased vulnerabilities in the domestic market (financial sector, sovereign credit market, real sector, the external sector), and/or vulnerabilities in foreign markets that spillover to the country (Das, Oliva, Tsuda, & Takahiro, 2012). There are several measures of sovereign risk. They include Agency-issued credit ratings, market-determined credit default swap (CDS) spreads, and institutional investor indexes.

Measurement of Sovereign Risk

CDS Spreads: CDS spreads are a type of financial instrument in which the seller agrees to compensate the buyer if the sovereign defaults on its debt during the given term. The spread is a series of payments that buyers make to sellers to ensure their investment. Therefore, a higher CDS spread reflects greater risk. CDS spreads can provide a real-time market perspective of sovereign risk.



Source: Author's Compilation

Figure 1 Conceptual Framework

2.2. Empirical Literature Review

Pan et al (2021) used a wider set of sovereign CDS data (78 developed and developing countries) to test the effects of COVID-19 on credit risk. To measure the severity of the COVID-19 pandemic, they used the natural logarithm of the number of daily new COVID-19 cases per million per capita from Our World in Data, an organization that tracks global coronavirus-related data. They found that sovereign CDS spreads are significantly positively associated with the COVID-19 pandemic. They posit that there is a positive relationship between COVID-19 and credit risk and that a 1% increase in COVID-19 infections leads to a 0.17% increase in sovereign CDS spreads.

Augustin et al in their study, in sickness and debt: The COVID-19 impact on sovereign credit risk using ex-ante cross-sectional differences in fiscal capacity, was instrumental for identifying any differential elasticity of sovereign default risk to COVID-19 infections where they looked at the interaction between the growth rate of COVID-19 infection and measures of fiscal constraints (Fiscally Constrained) found that there was a positive and significant sensitivity of sovereign default risk to the intensity of the virus's spread for fiscally constrained governments.

Cevik and Öztürk (2020) conducted a study on the Contagion of Fear finding out whether the Impact of COVID-19 on Sovereign Risk was Indiscriminating. The study is based on two different panel datasets; annual observations for 77

countries over the period 2004–2020 and daily observations for 77 countries in the first half of 2020. They used 5-year CDS spreads as a measure of sovereign default risk, which is obtained from Bloomberg, and found out that the COVID-19 pandemic had a significant impact on market-implied sovereign default risk.

3. Methodology

The baseline methodology to examine the impact of COVID-19 on Sovereign risk is as follows;

$$\log(CDS_{i,t}) = \alpha_o + \beta_o MRC_{i,t} + \beta_1 MRD_{i,t} + \beta_2 PBC_{i,t} + \beta_4 PLD_{i,t} + \varepsilon \dots\dots\dots eq. 1$$

where i is the country index and t is the month index, $\beta_o MRC_{i,t}$ is monthly recorded cases, $MRD_{i,t}$ is monthly recorded death, $PBC_{i,t}$ presence of border closure, $PLD_{i,t}$ presence of lockdowns and ε the error term. Prior studies have shown that sovereign credit risk is closely related to global factors (Favero et al., 2010; Gerlach et al., 2010; Longstaff et al., 2011; Galariotis et al., 2016). All standard errors are clustered at the country and quarter levels to correct for potential cross-sectional and serial correlations in the error terms. Our coefficient of interest is $\beta_1, \beta_2, \beta_3,$ and β_4 which reflects the average effect of the pandemic on sovereign CDS spreads. Both monthly recorded cases and monthly recorded deaths were retrieved from our world in data, and the presence of border closures and lockdowns are dummy variables. The researchers checked the various health websites of the selected nations for the start and end dates of the variables. There is a presence when the value is 1, and there is no presence when the value is 0.

For the studies, the researchers concentrated on ten West African countries. Benin, Cape Verde, Côte d'Ivoire, Ghana, Guinea, Mali, Mauritania, Nigeria, Senegal, and Togo are among them. They were chosen because they all come into the category of emerging economies and markets, and because they were not directly touched by the pandemic, the researchers were curious about how the pandemic affected them given that they were all countries with a weaker credit rating. The researchers used the Eview statistical software package in running the data and a logged leveled ordinary least square was estimated and presented for discussion.

4. Findings and discussions

4.1. Introduction

We considered 10 West African countries that recorded quite several cases for our studies. A correlation analysis is also run to test the relationship between the dependent and the independent variables. Regression analysis is also presented and explained in this chapter.

4.2. Correlation Analysis

Table 1 Correlation Matrix

	CDS_SPREAD	DAILY_RECORD_CASES	MONTHLY_DEATH_CASES	PRESENCE_OF_BORDER_CLOSURE	PRESENCE_OF_LOCKDOWN
CDS_SPREAD	1				
MONTHLY_RECORD_CASES	-0.142392	1			
MONTHLY_DEATH_CASES	-0.269961	0.902787	1		
PRESENCE_OF_BORDER_CLOSURE	0.008997	0.167346	0.16809	1	
PRESENCE_OF_LOCKDOWN	-0.155929	-0.203212	-0.190935	-0.000816	1

Source: Reviews output

The daily documented cases and CDS spread had an inverse connection, according to the correlation table. This means that as more cases are recorded monthly, the likelihood of a default increases. Governments are more likely to use the resources expected to pay in catering for these patients, increasing the likelihood of default because there would be no other available resource to pay their existing debt. Monthly death and CDS spread have a negative relationship. This

indicates that the monthly death of a person in any of these rising economies raises the chance of default. It can be noted that there is a positive correlation between the explanatory variable (presence of border closure) and the explained variable (CDS). This indicates that the more there are border closure restrictions, the more COVID is controlled, and this results in a higher CDS spread among emerging economies and markets. There was an inverse relationship between the presence of border closure in an emerging economy and CDS spread.

4.3. Regression Analysis

The regression table below gives a detail of the coefficient values, standard errors, the t-statistics, and the significant values. They are explained below;

Table 2 Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28.57327	0.186963	152.8282	0.00E+00
MONTHLY_RECORCED_CASES	7.11E-06	1.90E-06	3.736645	2.00E-04
MONTHLY_DEATH_CASES	-8.42E-04	0.000147	-5.739387	0
PRESENCE_OF_BORDER_CLOSURE	2.60E-01	0.193692	1.33985	0.1815
PRESENCE_OF_LOCK_DOWN	-0.448545	0.112588	-3.983967	0.0001
R-squared	0.182172	Mean dependent var		28.60329

Source: Researchers' Data from a secondary source

With a p-value of 2.00E-04, monthly recorded instances were negligible. This indicates that monthly recorded cases do not affect the rate at which a country is likely to default on its loans. Though negligible, it recorded a positive coefficient of 7.11E-06, indicating that when one individual tests positive for coronavirus, the default rate for an emerging country increases by 7.11E-06 percent. This issue will deter investors and other sovereign governments from doing business with these growing markets.

Monthly death cases were statistically significant with a p-value of 0.000. As a result, it has a considerable impact on the rate at which a growing country is likely to default on its risk. The considerable relationship is consistent with Cevik and ztürkkal's (2020) conclusions that the COVID-19 pandemic had a major impact on market-implied sovereign risk. The monthly death case coefficient was negative, implying that when one person dies from coronavirus sickness, there is an 8.42E-04 percent chance of default. When productive inhabitants in an emerging country are killed by the virus, the country's human capital is reduced, and consequently, production levels are reduced, which could have boosted the country's GDP ratio. Because its human capital is dwindling due to an increase in monthly confirmed mortality, its GDP is dwindling as well, diminishing its ability to pay its debt.

With a p-value of 0.1815, the presence of border closure was inconsequential to CDS. This suggests that there is no meaningful relationship between the presence of border closure and the presence of sovereign hazards. Despite the insignificant p-value, it revealed a positive coefficient of 2.60E-01. This indicates that as the governments of these rising economies and markets apply severe border closure measures, it will most likely help lower its sovereign risk by around 2.60E-01 percent, all else being equal. A border closure policy will help to reduce the smuggling of goods over its land borders, boosting domestic food production and national productivity levels across the board. At a p-value of 0.001, there was a significant association between the existence of lockdowns and CDS. This suggests that the greater the number of lockdown measures, the greater the impact on a country's sovereign risk. The presence of the lockdown coefficient was negative, implying that there is a negative association between the presence of lockdown and CDS spread. Thus, the prevalence of lockdowns in these growing economies and marketplaces reduced productivity, thus increasing the danger of default.

5. Conclusion

The basic purpose of this research was to analyze the impact of COVID-19 on sovereign risk of emerging markets and developing economies (EMDES). For this purpose, the paper fills this gap by conducting an empirical analysis of the impact of the COVID-19 crisis on sovereign risk in emerging countries specifically in the West African nations using the

number of recorded deaths cases monthly, the number of cases recorded monthly, the presence of lockdowns monthly, and the presence of border closure monthly in selected emerging countries as variables for measuring COVID-19 on Debt to GDP ratio, which measures sovereign risk. The baseline methodology we used to examine the impact of COVID-19 on Sovereign risk is as follows; $\log(CDS_{i,t}) = \alpha_o + \beta_o MRC_{i,t} + \beta_1 MRD_{i,t} + \beta_2 PBC_{i,t} + \beta_4 PLD_{i,t} + \varepsilon$. where i is the country index and t is the month index, $\beta_o MRC_{i,t}$ is monthly recorded cases, $MRD_{i,t}$ is monthly recorded death, $PBC_{i,t}$ presence of border closure, $PLD_{i,t}$ presence of lockdowns and ε the error term. We considered 10 West African countries that recorded quite several cases for our studies. A correlation analysis is also run to test the relationship between the dependent and the independent variables regression analysis. Based on the research findings, this study recommends that further studies be made to find out why there has been a negative, implying that there is a negative association between the presence of lockdown and CDS spread. Thus, the prevalence of lockdowns in these growing economies and marketplaces reduced productivity, thus increasing the danger of default.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest is to be disclosed.

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