Chapter **3**

Relationship Between CDS and Economic Growth[1] 🔓

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Abstract

Financial liberalization, coupled with increasing technological developments, has led to the ease of international capital flows, accelerated the circulation of information and thus enabled the integration of financial markets in different countries. This situation leads to the fact that positive or negative developments in one market affect other markets as well. This situation has led some financial indicators and credit rating agencies' ratings/reports to become more important, especially for investors. One of these is CDS (Credit Default Swap) rates.

This study aims to examine the relationship between CDS rates and growth rates of G7 countries (Germany, United States, United Kingdom, France, Italy, Japan and Canada) and BRICS countries (Brazil, Russia, India, China and South Africa) classified according to their development levels. Annual data between 2008 and 2022 are used in the study. CDS (5-year USD-based bond yield) premium is used as the independent variable and GDP (Gross Domestic Product) % change is used as the dependent variable. In the analysis of the data, cross-section dependence, stationarity and homogeneity tests were conducted first. Horizontal cross-section dependence and heterogeneity were found to exist. Panel VAR and Panel Causality analyses were conducted. According to the test results, a causality relationship was found from CDS to GDP in the short and long run at the 1% significance level, while no causality relationship was found from GDP to CDS in the short and long run. As a result of the short-long run effects and causality tests, a high causality relationship was found between economic growth and CDS rates

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in Germany and the US among the G7 countries, while a high causality relationship was found in Russia and a lower causality relationship was found in China among the BRICS countries.

As can be seen from the results, even in countries classified according to certain criteria, the relationship between CDS and economic growth does not have the same degree of impact. Further studies using different countries, different time periods and different analysis methods will contribute to the literature.

1. Introduction

Economic growth is defined as the increase in the production volume of an economy over time. One of the important indicators of the increase in the volume of production in a country is the changes in the Gross Domestic Product (GDP). While developed countries attach importance to economic growth (the change in real GDP over the years), developing countries attach importance to the concept of economic development. The reason for this is that economic development includes not only economic growth but also social and political areas such as reducing income imbalances in society, reducing unemployment, modernizing economic and social institutions (Seyidoğlu, 2006, p. 829).

Economic growth theories are divided into two main groups as exogenous and endogenous economic growth theories. In the neoclassical model, technological development is assumed to be measured by the share of the increase in production that cannot be explained by factors of production alone. In this context, technological development is considered as an exogenous factor. This is because technological progress is assumed to be unaffected by economic factors despite its significant impact on GDP. Recent studies, on the other hand, suggest that technological progress is a response to economic signals such as prices and profits. In other words, technological development is an endogenous process for the economic system (Seyidoğlu, 2006, pp. 844-845). According to the neoclassical model, economic growth occurs in the following three ways (Parasız, 2003, p. 840).

- Increase in the amount of factors of production utilized while technology is constant,

- Advancement of technology while the factors used in production remain constant,

- Both the increased supply of factors of production and the advancement of technology.

Financial liberalization, coupled with increasing technological developments, has led to the ease of international capital flows, accelerated the circulation of information and thus enabled the integration of financial markets in different countries. This situation leads to the fact that positive or negative developments in one market affect other markets as well. Financial liberalization may offer new investment opportunities for investors. However, a crisis or price fluctuation in financial markets can affect other markets or countries in a short time. This increased interconnectedness between markets both encourages and obliges financial practitioners and decision makers to investigate these relationships. This situation has led some financial indicators and credit rating agency ratings/reports to become more important, especially for investors.

One of these is Credit Default Swap (CDS) premiums. A CDS is basically an insurance contract under which periodic coupon payments are made to the seller of the protection against the possibility that the reference asset will not be repaid (Ericsson, Jacobs & Oviedo, 2009, p.109) or until a credit event occurs. The reference asset subject to the definition refers to a financial asset such as a corporate loan, bank loan, sovereign bond or corporate bond, or a portfolio of these (Karabıyık & Anbar, 2006, p.3). When a credit event occurs in a sovereign or corporate issuer, the protection buyer pays the protection seller a CDS premium, also called a spread, at regular intervals as compensation (Ericsson, Jacobs & Oviedo, 2009, p.110). The credit event mentioned here was categorized under 6 headings by the International Swap and Derivative Association (ISDA) in 2003 (Bank & Kahraman, 2023, p.16):

1) Bankruptcy,

2) inability to repay debt,

3) acceleration of obligations,

4) debt repudiation/ moratorium,

5) default by the party selling swap protection,

6) debt restructuring

The type and amount of payment to be made by the protection seller in the event of a credit default is specified in the contract. These payments can be made in three ways: physical delivery, cash delivery and fixed amount delivery option. However, due to the illiquidity of the market for the financial asset subject to the contract and the unreliability of the pricing, CDS contracts are mostly terminated with the physical delivery option (Rooney, 1999 p.199).

In recent years, in addition to CDS, there have been many academic studies investigating the relationship between the Volatility Index (VIX), the Consumer Confidence Index (CCI), the ratings of credit rating agencies such as Standard & Poor's, Moody's or Fitch and indices, economic growth, etc. Some of these studies are given below.

Sadeghzadeh (2018) used the closing values of the BIST 100 index, the VIX Fear Index in the US (Volatility Index) and the Consumer Confidence Index in Turkey for the period 2004:Q01 - 2018:Q04 to measure the impact of psychological factors affecting the BIST100 Index in Turkey. Dynamic Ordinary Least Squares (DOLS) and Granger causality test are used for long and short-run analyses. He stated that individuals trading in the stock market and brokerage house representatives should behave in a way that takes into account the negative effects of VIX and the positive effects of TGE in the short run; in the long run, they should behave in a way that takes into account macroeconomic variables as well as VIX.

Ögel and Fındık (2020), This study aims to analyze the relationship between the VIX index, which is expressed as the global fear index, and the stock market indices of developed and developing countries in different continents. In this context, using daily data between 30.01.2012 and 13.02.2020, it is tested whether there is a long-run relationship between the VIX index and Japan and China stock indices representing the Asian continent; the United States and Brazil stock indices representing the American continent; Australia and New Zealand stock indices representing the Australian continent; South Africa and Nigeria stock indices representing the African continent; Turkey and Germany stock indices representing the European continent; and the causality relationship between these variables. As a result of the analysis, it is found that there is a long-run relationship between VIX and all variables, but there is no causality relationship from VIX to Dow 30 (United States) index in the short run, It is observed that there is a causality relationship between BIST 100 (Turkey), Shanghai (China), S&P/ASX 200 (Australia), South Africa Top 40 (South Africa), Bovespa (Brazil), NSX 50 (New Zealand), NSE 30 (Nigeria), Nikkei 225 (Japan) indices.

Sarı and Kartal (2020), Fear and uncertainty during the coronavirus pandemic caused an increase in volatility in financial and commodity markets. This study was conducted to show that Covid-19 has significant effects on financial and commodity markets. The period between January 22, 2020 and April 20, 2020 was taken into account and the analysis was carried out using daily data. The possible impact of the daily number of Covid-19 cases

on gold prices, oil prices and the VIX Index was analyzed using the ARDL Frontier Test. According to the results, the same directional relationship was found between the number of cases and gold prices. Similarly, the same directional relationship was found between the number of cases and the VIX Index. However, no cointegration relationship was found between the number of cases and oil prices. The results of the study show that the number of Covid-19 cases has a significant impact on gold prices and the VIX Index.

Çonkır, Meriç & Esen (2021), Turkey BIST-30, Mexico IPC, India NIFTY 50, Russia MOEX and Indonesia Islamic Index (JKII) were analyzed by applying the VAR model and Granger Causality Test in a study covering monthly data between 2015-2019. It is found that there is a unidirectional relationship towards the BIST-30 index. No unilateral or reciprocal relationship was found between the VIX index and Mexico IPC, India NIFTY 50, Russia MOEX and Indonesia JKII stock markets. It is determined that the fear index has a causality relationship with the Turkish stock market at 10% significance level and can explain the changes in the stock market.

2. Purpose of the Study

This study aims to examine the relationship between CDS premiums and growth rates of G7 countries (Germany, the United States, the United Kingdom, France, Italy, Japan and Canada) and BRICS countries (Brazil, Russia, India, China and South Africa) classified according to their development levels.

The historical process of CDS premiums and growth rates of G7 countries between 2008 and 2022 is given below. After the 2008 crisis, CDS premiums rose to 500 for Italy, 200 for France, 150 for Japan and the UK. During this period, the CDS premiums of the US and Germany did not exceed 100, showing the best performance among the G7 countries. The lowest growth rates were observed in 2009 and 2020. Canadian CDS data for 2008-2011 are not included in the charts as they were excluded from the analysis due to unavailability.
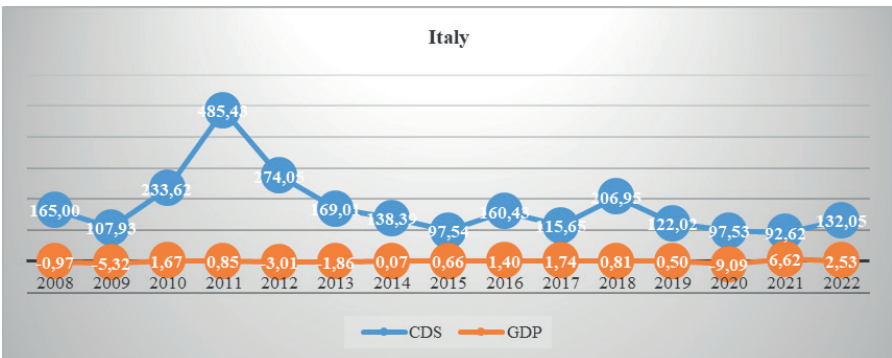
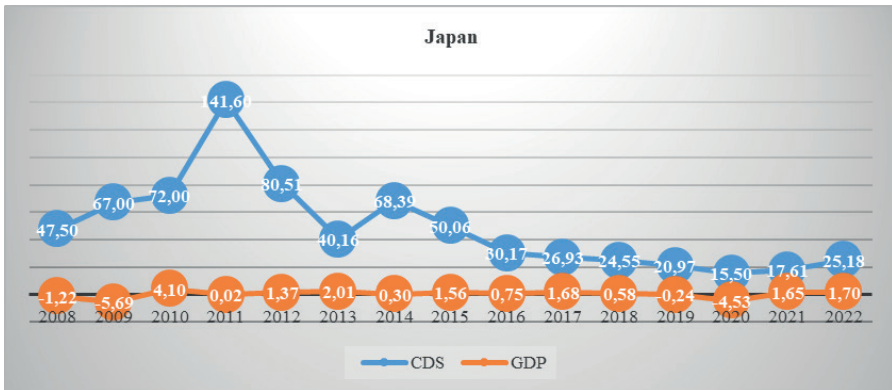*Graph.1 Relationship between CDS and GDP, France*
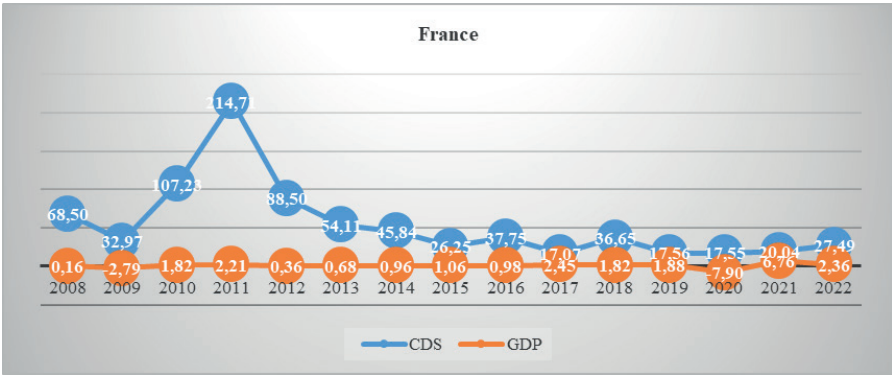
Graph.2 Relationship between CDS and GDP, Germany
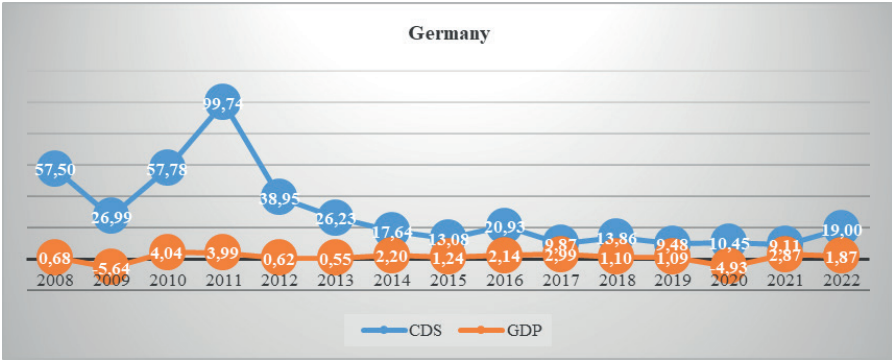
Graph.3 Relationship between CDS and GDP, Italy

Graph.4 Relationship between CDS and GDP, Japan

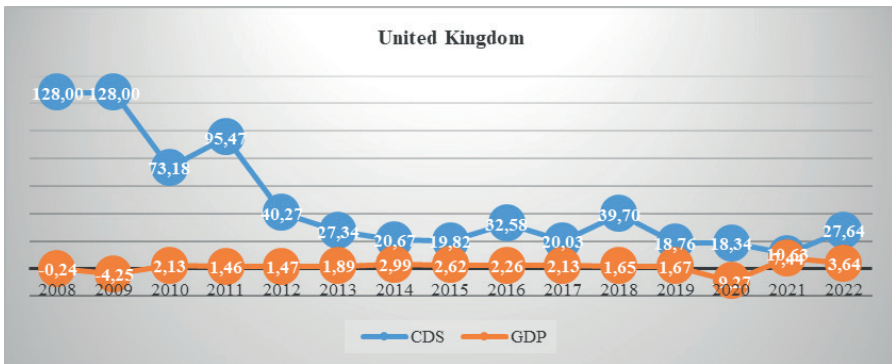*Graph.5 Relationship between CDS and GDP, United Kingdom*

Graph.6 Relationship between CDS and GDP, United States

Graph.7 Relationship between CDS and GDP, Brazil
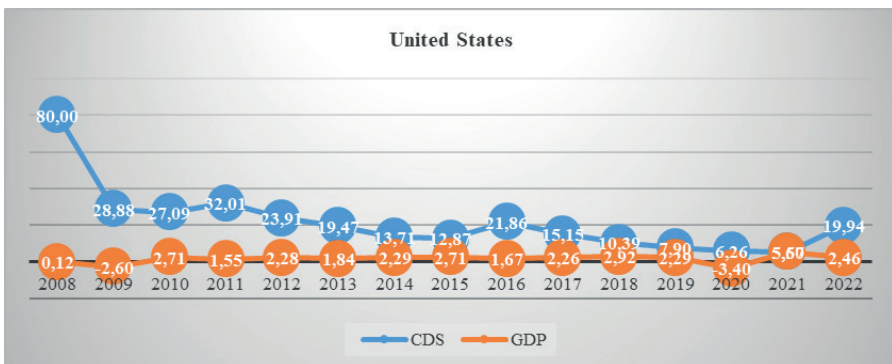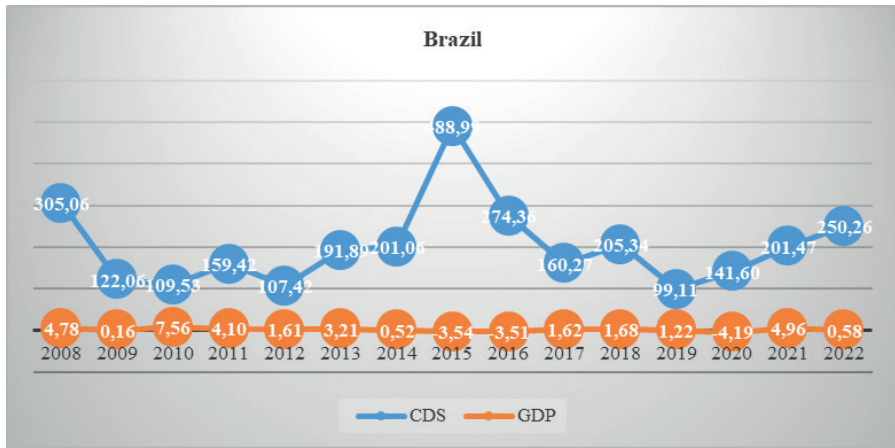

Graph.8 Relationship between CDS and GDP, Russia

*In the chart for Russia, whose CDS premiums reached very high levels (around 14,000) after the Ukraine attack, CDS and GDP values are not shown as they appear on top of each other.

Graph.9 Relationship between CDS and GDP, China
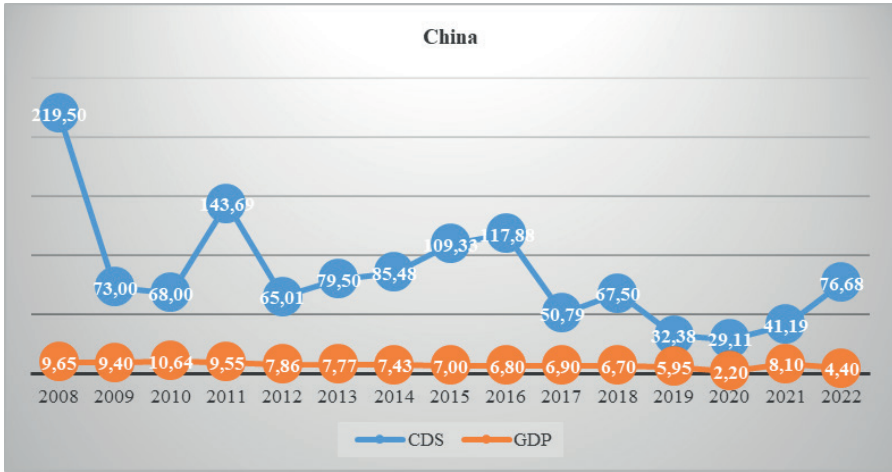
Graph.10 Relationship between CDS and GDP, South Africa
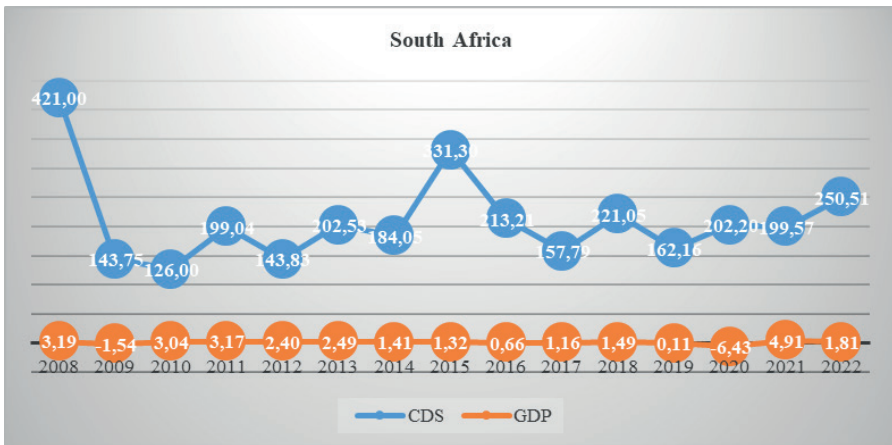
It is also evident from the graphs that the CDS data of the BRICS countries are considerably higher than those of the G7 countries. The CDS premiums of Russia, which is considered to be the most stable, rose up to 14,000 with the Ukraine war. India's CDS data for 2008-2014 are not included in the charts as they were excluded from the analysis due to unavailability.

3. Literature

Kaya and Coskun (2015) Is the VIX index a cause of securities markets? The aim of this study is to examine the relationship between the VIX Fear Index Volatility Index, growth, exchange rates and CDS premium. It is

analyzed whether there is a short and long-run relationship between these variables. Accordingly, volatility index data for Turkey covering the period between January 2008 and December 2018, data on the USD currency equivalent of the Euro currency, industrial production index for growth and CDS premium data were used. The relationship between the VIX index, parity, growth and CDS premium is analyzed using e-views econometric analysis program. Extended Dickey Fuller Unit Root Test and Granger Causality Test are applied. As a result, it is determined that the volatility index is the granger cause of the industrial production index. There is a unidirectional causality relationship between these two variables. No causality link was found between other variables.

Ho (2016) analyzed the long and short-term determinants of country CDS spread for eight emerging economies from 2008 to 2013. Panel unit root and panel cointegration tests are used to test the long-run relationship between country CDS spread and explanatory variables. In this research, he used three main macroeconomic determinants, namely current account, external debt and international reserves, and analyzed them using a non-stationary panel econometric model represented by the Pooled Mean Group cointegration approach. The findings indicate that there is cointegration among these variables and the coefficients of current account, external debt and international reserves are highly significant in explaining the long-run country CDS spread for all countries. Moreover, international reserves are more important than the current account to reduce the long-run country CDS spread, heterogeneous short-run dynamics are allowed and the short-run effects are not significant for all countries.

Kocsis and Monostori (2016) examine the empirical relationship between sovereign CDS spreads and a wide range of fundamental variables for thirteen Eastern European countries (Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovakia, Turkey, Ukraine) over the sample period 2008-2014. A hierarchical dynamic factor model is used to construct aggregate factors for five groups of country-specific fundamental variables and CDS spreads are regressed on the factor estimates. They applied the model to investigate the CDS spreads of the three largest economies in the dataset (Poland, Russia and Turkey). Poland has lower-than-average CDS spreads with positive values on most fundamentals, while Russia's relative CDS spread is close to the regional average for most of the period, and the key positives for Turkey's CDS spread are banking sector health and real growth factors, while the political-institutional environment and fiscal position act to increase spreads.

Dinç, Yıldız and Kırca (2018) investigated the economic and political shocks that have an impact on Turkey's CDSs. They aimed to identify the structural breaks in monthly CDS premiums determined according to the five-year CDS basis points for the January 2012-December 2016 periods and to identify both economic and political factors that cause these breaks. Taking structural breaks into account, the unit root test developed by Kapetanios (2005) was used in the study, and before conducting this test, the significance of the constant and trend in the CDS data was tested with the Least Squares method. It is stated that the CDS trend is constant and significant and this should be taken into account in the analysis. According to the results of the unit root test, it was concluded that the CDS data were non-stationary with four breaks and they made a statement that structural breaks have a permanent effect on CDS. They concluded that there were many breaks in the relevant dates and the reasons for these breaks were the effects of many economic and political events. However, when the causes of the breaks are analyzed in more detail, it is understood that political events are more effective than economic events. Based on all these findings, they stated that keeping the risk perception of Turkey at low levels and attracting much more investment to the country depends on both economic and political stability.

Bektaş and Babuşçu (2019) investigated the effect of VIX fear index and CDS premiums on growth and exchange rate between 2008-2018. Econometric Analysis Program, Extended Dickey Fuller Unit Root Test and Granger Causality Test were used in the research. As a result of the research, it is concluded that the volatility index is the Granger cause of the industrial production index. While a unidirectional causality relationship was found between these two variables, no causality relationship was observed between other variables.

Barut (2019) analyzed the effect of CDS risk premium on the development of foreign capital in Turkey between 2000-2019. In his study, he used time series and statistical analysis methods. As a result, it was observed that investors making both direct and indirect investments take into account CDS risk premiums, that there are inverse proportions between CDS risk premiums and capital inflows and outflows, and that there is a decrease in capital inflows with an increase in CDS risk premium, while there is an increase in capital inflows and a decrease in outflows with a decrease in CDS risk premiums.

Süsay and Ünal (2020), The aim of the study is to examine the causality relationship between selected confidence indices, Volatility Index (VIX)

and Credit Default Swaps (CDS) and growth for Turkey. At this point, Economic Confidence Index, Financial Services Confidence Index, VIX, CDS premiums and Industrial Production Index representing growth between 2014 and 2019 are used in the analysis and the indicators are analyzed by Toda-Yamamoto causality analysis. The causality analysis conducted after the recession test in the unit root tests revealed that there is a bidirectional causality relationship between the Economic Confidence Index and growth, but there is no causality relationship between CDS premiums and growth. In addition, other data of the study suggest that there is a unidirectional relationship from VIX to growth, but there is no causality between the Financial Services Confidence Index and growth. The lack of a causal relationship between CDS and growth is due to the fact that the growth experienced in the Turkish economy during the analyzed years was based on different economic fundamentals.

Bektur and Münyas (2021), Fear Index (VIX) is one of the important indicators used in financial markets to predict the expected future movements of securities. In this study, the effect of Credit Default Swap (CDS), Dollar Exchange Rate, Euro Exchange Rate, BIST 100 and Gold variables on the Fear Index (VIX) and the existence of a cointegration relationship between them are analyzed for the period 03.01.2005-31.12.2019. In the study, the long-run relationship between the variables was examined with the ARDL cointegration approach and the long-run coefficient was estimated as a result of the ARDL model. Fear Index (VIX) is taken as the dependent variable and CDS, Dollar Rate, EURO Rate, BIST 100 and Gold rates are taken as independent variables. According to the results, there is a negative relationship between the dependent variable VIX and the USD variable, while there is a positive relationship with all other variables.

Alsubaiei, Calice & Vivian (2021), in an empirical analysis using data from 24 advanced economies over 2016-2017, find that CDS spreads are indeed associated with declining mutual fund return performance and that individual CDS spreads are negative with subsequent fund flows. This is consistent with investors being sensitive to pricing information transmitted by the sovereign CDS market. Finally, we find that the impact of sovereign CDS spreads on mutual fund performance and flows is more pronounced among emerging market countries.

Dural and Seçme (2022) analyze the interaction of FED and ECB monetary policy decisions, global liquidity and risk perception on CDS premiums of Poland, Turkey, S. Korea and Russia. VIX and TED variables are also included in the study to reflect the global impact of risk perception and

liquidity. The data used are based on the 2005-2020 period and the GARCH method is used to analyze how these variables affect CDS premiums. A separate model was used for each country in the studies. According to the ARC effect, Turkey, Russia and S. Korea CDS premiums are affected by the past values of FED interest rate, ECB interest rate, TED and VIX index, while Poland CDS premiums are affected by the past values of other variables (FED, ECB and VIX) except TED. According to the GARCH results, the shock effect on the FED, ECB and TED indices affects the Turkish CDS premium, but since the coefficient of the VIX index is not significant, it is not found to have an effect on the Turkish CDS premium. In terms of Poland, they mentioned that the shock effect in the FED, ECB and TED indices may affect the Polish CDS premium, but while it was found that any shock in the VIX index did not affect the Polish CDS premium at the 5% significance level, they could not reach a conclusion that the shock effect in the FED, ECB, TED and VIX variables affected the CDS premium in the results of Russia and S. Korea. According to these findings, the results are not conclusive and common across countries. While Turkey and Poland are similar, S. Korea has similar results with Russia. They think that the differences in the results may be due to the macroeconomic and domestic policy practices of the countries.

Sarıtaş, Kar & Pazarcı (2023) investigated the relationship between FDI and CDS, VIX index and credit ratings in Turkey and used data for the period 2002:Q1-2021:Q4. Using the ARDL bounds test approach, the results indicate that there is a long-run relationship between FDI and VIX index, CDS premiums and credit ratings in Turkey. According to the long-run coefficients estimated in the ARDL cointegration analysis, VIX index and Moody's credit ratings have a negative and significant effect on FDI inflows to Turkey, while credit ratings assigned by Fitch have a positive and significant effect.

Sönmez, Baydaş and Kılıç (2023) examined the volatility spillovers between CDS premiums and selected BIST indices. In the light of daily data between 2010 and 2022, they analyzed the variables by transforming them into return series. In their study, five-year CDS, BIST100, BIST30, BIST Banking, BIST Services and BIST Industrials indices were used as variables and they utilized the DC-MSV model to find volatility data for these variables. Eviews 9 and Winbugs programs were used in the estimation of the analysis. According to the results of the DC-MSV model, they found that the volatilities of CDS premiums, BIST 30, BIST 100, BIST Services, BIST Banking and BIST Industrials indices are persistent. They found that there is a mutual volatility transmission between CDS premiums and BIST

30, BIST 100, BIST Services, BIST Bank and BIST Industrials indices, the volatilities of these indices are predictable and the transmission is positive.

4. Data Set and Methodology

Annual data between 2008 and 2022 are used in the study. CDS (5-year USD-based bond yield) premium was used as the independent variable and the % change in Gross Domestic Product (GDP/GDP-Gross Domestic Product) was used as the dependent variable. E-wievs program was used in the analysis of the study.

Table.1 Variables Used in the Analysis and Data Source

Country Group	Countries	Time	CDS	GDP	Source
G7	Canada* France Germany Italy Japan United Kingdom United States	2008-2022			Investing.com
BRICS	Brazil Russia India* China South Africa	2008-2022			

*CDS data for Canada between 2008-2011 and India between 2008-2014 are excluded from the analysis as they are not available.

5. Analysis Results

In order to test unit root in panel data analysis, horizontal cross-section dependence is tested first. If there is no horizontal cross-section dependence, 1st generation unit root tests are used; if there is horizontal cross-section dependence, 2nd generation unit root tests are used.

In panel data analysis, Peseran (2004) CDLM, Breusch-Pagan CDLM1, Peseran (2004) CDLM2 tests are used to test for horizontal cross-section dependence. CDLM1 and CDLM2 are used when T>N, i.e. the time dimension is larger than the horizontal dimension. The CDLM test is used when N>T, i.e. the horizontal dimension is larger than the time dimension.

In horizontal cross-section dependence tests;

H_0 : there is no horizontal cross-section dependence.

H_1 : there is horizontal cross-section dependence.

Table.2 Cross-Section Dependence Tests

Constant	GDP		CDS	
	Statistic	p-value	Statistic	p-value
CD_{lm} (BP,1980)	110.869	0.00***	209.597	0.00***
CD_{lm} (Pesaran, 2004)	6.943	0.00***	17.35	0.00***
CD (Pesaran, 2004)	-0.386	0.35	6.482	0.00***
LM_{adj} (PUY, 2008)	-1.273	0.89	-4.717	0.00***

Notes: $\Delta y_{i,t} = d_i + \delta_i y_{i,t-1} + \sum_{j=1}^{p_i} \lambda_{i,j} \Delta y_{i,t-j} + u_{i,t}$ *modelinde gecikme sayısı (p_t) 1 olarak alınmıştır.*

According to the test results, there is horizontal cross-section dependence. Smith et al. (2004) "bootstrap" panel unit root test panel unit root test can be performed if there is horizontal cross-section dependence. Moreover, the difference of the "bootstrap" panel unit root test from the others is that it obtains the critical values with boostrap. Smith et al. (2004) "bootstrap" panel unit root test hypotheses;

H_0 : the series has a unit root, i.e. it is non-stationary.

H_1 : the series does not have a unit root, i.e. it is stationary.

Table.3 Smith et al. (2004) "bootstrap" Panel Unit Root Tests

	Constant		Constant and Trend	
Levels	Statistic	Bootstrap p-value	Statistic	Bootstrap p-value
GDP	-3.920	0.00***	-4.18	0.014**
CDS	-2.883	0.011**	-2.808	0.12
First difference				
GDP	-5.305	0.00***	-5.010	0.00***
CDS	-3.825	0.00***	-4.341	0.024**

The maximum lag length is taken as 4 and the optimal lag lengths are determined by the general-to-specific approach. Probability values are obtained from the 5000 bootstrap distribution.

***, **, and * denote statistical significance at the 1, 5, and 10% level of significance, respectively.

According to the results of the "Bootstrap" panel unit root test, the GDP series is stationary at the 1% level of significance in the fixed model and at the 5% level of significance in the fixed-trend model. The CDS variable is stationary at the 5% level of significance in the fixed model. It has a unit root in the model with constant-trend and becomes stationary when the first difference is taken.

In addition to horizontal cross-section dependence, it would be useful to look at the homogeneity test developed by Peseran and Yamagata (2008) to analyze the relationship between CDS and GDP. In the homogeneity test, it is determined whether the constant term and slope coefficients are homogeneous or heterogeneous for each horizontal cross-section.

Hypotheses from horizontal cross-section dependence;

H_0: no horizontal cross-section dependence

H_1: there is horizontal cross-section dependence.

Hypotheses in the homogeneity test;

H_0: homogeneous for each cross-section

H_1: heterogeneous for each cross-section

Table.5 Cross-Section Dependence and Homogeneity Tests

	Statistic	p-value
Cross-section dependency tests:		
LM (BP,1980)	379.45	0.00***
CD_{lm} (Pesaran, 2004)	35.254	0.00***
CD (Pesaran, 2004)	18.725	0.00***
LM_{adj} (PUY, 2008)	31.962	0.00***
Homogeneity tests:		
$\tilde{\Delta}$	-3.577	0.00***
$\tilde{\Delta}_{adj}$	-4.666	0.00***

***, **, and * denote statistical significance at the 1, 5, and 10% level of significance, respectively.

Considering the test results above, h0 is rejected and h1 is accepted for both horizontal cross-section dependence and homogeneity. In other words, the existence of horizontal cross-section dependence and heterogeneity is

detected. For this reason, it was decided to conduct panel cointegration tests without structural breaks, tests that take into account cross-sectional dependence.

Table.6 Tests Considering Cross-Section Dependence Panel Cointegration Tests without Structural Breaks

Tests	Constant			Constant and Trend		
	Statistic	Asymptotic p-value	Bootstrap p-value	Statistic	Asymptotic p-value	Bootstrap p-value
LM bootstrap (Ho: cointegration)						
LM_N^+	0.776	0.364	0.852	3.224	0.024**	0.067*

Bootstrap probability values are obtained from the distribution with 1,000 replications. Asymptotic probability values are obtained from the standard normal distribution.

According to the above test results, cointegration is not detected in the model with constant. In the model with constant and trend, cointegration is found to exist asymptotically at 1% significance level and bootstrap at 5% significance level.

In the panel VAR model, Granger causality test results show short-run causality. In the panel VECM panel error correction model, the error correction coefficient is statistically significant, indicating that there is causality from independent variables to the dependent variable as a whole in the long run. Hypotheses:

H_0: no causality

H_1: there is causality

is in the form. At the decision stage, the prob value for PVAR short-run causality and the t statistic for PVECM long-run causality (2.57 for 1%, 1.96 for 5% and 1.64 for 10%) are used.

Table.7 Panel VAR and Panel VECM Causality

	Short-run causality		Long-run causality
	Δ (GDP)	Δ (CDS)	ECT(-1)
Δ (GDP)	-	1.880 (0.39)	-1.444 [-7.852]***
Δ (CDS)	12.392 (0.00)***	-	0.225 [0.259]

*Notes: The figures which is ***, ** and * show 1 %, 5 % and 10 % levels, respectively. () and [] show probability value and t statistics, respectively.*

According to the Panel VAR and Panel Error Correction Model Causality results, there is a causality relationship from CDS to GDP in the short and long run at the 1% significance level, while there is no causality from GDP to CDS in the short and long run.

Emirmahmutoğlu and Köse (2011) causality test was applied to reveal the causality relations between the series.

Table.8 Emirmahmutoğlu and Köse (2011) Panel Causality

Country	Lag	GDP≠>CDS		CDS≠>GDP	
		Wald	p-value	Wald	p-value
Fransa	1	1.151	0.283	0.320	0.571
Almanya	2	5.495	0.064*	0.154	0.925
İtalya	2	1.351	0.508	1.840	0.398
Japonya	3	3.938	0.268	10.785	0.012**
İngiltere	2	1.353	0.508	1.936	0.379
Amerika	2	6.884	0.031**	1.040	0.594
Brezilya	2	0.103	0.747	2.169	0.140
Rusya	1	16.594	0.00***	7.709	0.052*
Çin	3	3.081	0.079*	0.001	0.969
Güney Afrika	1	0.016	0.869	0.069	0.792
Fisher		40.240	0.00***	34.131	0.089*

*Notes: The figures which is ***, ** and * show 1 %, 5 % and 10 % levels, respectively*

According to the results of the panel causality test developed by Emirmahmutoğlu and Köse, there is a causality relationship from GDP to CDS at 10% significance level in Germany and China, 5% in the US and

1% in Russia. There is causality from CDS to GDP at 5% significance level in Japan and 10% in Russia.

6. Conclusion

In recent years, the difficulty and cost of accessing financing has been increasing. CDS premiums have also become increasingly important in terms of access to financing and their impact on financing costs. Due to its increasing importance, it has been the subject of many studies (Indices, Growth, Foreign Direct Investment, etc.). In this study, the effects of CDS premiums on growth rates in different country groups are investigated by panel data analysis method. As a result of short-long run effects and causality tests, a high causality relationship was found between CDS premiums and economic growth in Germany and the US among G7 countries, while a high causality relationship was found in Russia and a lower causality relationship was found in China among BRICS countries.

As can be seen from the results, even in countries classified according to certain criteria, the relationship between CDS and economic growth does not have the same degree of impact. Further studies using different countries, different time periods and different analysis methods will contribute to the literature.

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