



The sovereign debt market between repercussions of the COVID-19 crisis and speculation on the CD Swaps Markets.

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Abstract

In an inflationary global context accentuated by the COVID-19 health crisis, by the slowdown in the global supply chain and marked by a surge in energy prices, the sovereign debt bond market has been one of the markets most affected by these disruptions, because States were forced to resort to large bond issues on the sovereign bond market in order to cover their expenses, in addition to periodically refinancing themselves on the markets via securities issues (duty bonds). Treasury).

Added to this are the unconventional interventions of Central Banks such as the ECB's emergency securities purchase program (PEPP) established in March 2020 to respond to the panic effect on the financial markets. During this turmoil, the Sovereign Credit Default Swaps (CDS) market worsened the situation, notably by encouraging speculation.

Keyword Financial market ; Sovereign bond ; Public deficit financing ; Central Bank, Sovereign credit default swaps

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1. INTRODUCTION

The consequences of political choices during the COVID-19 health crisis caused a widening of the public deficit. On the one hand, GDP strongly affected due to a decline in economic activity.

On the other hand, the balance between state expenditure and resources was strongly affected because state revenues stagnated, causing a drop in public revenue, at the same time states had to face additional expenditure to remedy the situation. the global health crisis.

The World Bank forecasts a slowdown in growth of 1.7% at the end of 2023 (La Banque mondiale, 10 janvier 2023, p. 5), also the inflation rate has marked its highest level in decades. Consequently, and to remedy the additional expenses, its countries have resorted to the sovereign debt markets in an attempt to find resources to finance their activities. Faced with this, there is added another dimension that States had to take into account represented by another connected market, namely the Credit Default Swaps (or CDS) market presenting the simplest instruments and the most common form of derivatives of Credits designed to effectively transfer the risk of default between two or more parties, without actually transferring ownership of the underlying asset, this CDS market has enabled greater speculation on public debts.

Our problem is positioned in a main question:

What is the impact of the COVID-19 health crisis on the sovereign debt market?

Our research questions that we attempted to answer are as follows:

1-How does a crisis unfold in a sovereign debt bond market?

2 -How the sovereign debt bond market developed after the COVID-19 health crisis

3-What is the impact of Default Credit Swaps sovereign CDS markets speculation tools in financial markets.

This is the framework of our research work. To answer these questions, we made two hypotheses :

Hypothesis 1: A crisis in a sovereign debt bond market is assumed to be one that typically occurs when a country's government encounters financial difficulties and has difficulty repaying its sovereign debt.

Hypothesis 2: It is assumed that the COVID-19 crisis has had significant impacts on the sovereign debt bond market. Many countries have increased their debt levels to finance economic recovery measures, leading to increased sovereign bond issuance. This has had consequences such as changes in interest rates and increased volatility in financial markets.

Hypothesis 3: It is assumed that the widespread use of CDS also amplified the effects of the crisis. If many investors hold CDS on a particular sovereign debt, the massive payment of these contracts can create additional pressures on financial markets. This can contribute to financial contagion and increased volatility.

Our article will confirm or refute these hypotheses.

2. Sovereign Debt Bond Market :

The sovereign debt market is one of the largest and most active markets in the world. It constitutes an essential debt tool on the State to finance their budgetary deficits.

2.1 Definition of an obligation :

Bonds are values which provide the bondholder with an income called a coupon and are repaid according to processes set by the issue contract. The coupon is fixed but given the volatility of interest rates, certain issues are made at variable or revisable rates. (GUENDOUZI, p. 80)

The Algerian Commercial Code has given a clear definition for Bonds which are negotiable securities which confer rights for all creditors (code de commerce)

The bond therefore represents part of the debt of the Company or the State. It offers its owner the right to remuneration in the form of a nominal interest rate and the right to be reimbursed at the maturity of the bond loan.

Bonds are financial instruments that represent a form of debt. When an entity, whether a company, a municipality or a government, wants to borrow money, it can issue bonds to raise funds. They consist of:

Issuer : The entity that issues the bond is called the issuer. This may be a private company, a local authority (such as a municipality) or a government (issuer of sovereign debt).

Investors These are the buyers of the bonds. Investors lend money to the issuer in exchange for the bond, and in return they receive periodic interest (coupon) and, at maturity, repayment of the original amount invested.

Coupon : This is the periodic interest rate paid to bondholders. Coupons can be fixed or variable, and they are generally paid semi-annually or annually.

Maturity : This is the date on which the bond matures, and the issuer repays the original amount borrowed from the bondholders.

Walk secondary : Bonds can be traded on the secondary market before maturity. Investors can buy them or sell them to other investors.

Bonds are considered relatively safe investments compared to some other forms of investment, but their yield is generally lower than that of stocks. They play an important role in financial markets by allowing entities to borrow money to finance projects or meet other financial needs.

2.2 Definition of sovereign debt obligations

A sovereign bond is debt issued by a national government. When a government needs to raise funds to finance its operations, projects or to repay existing debts, it can issue bonds on the financial markets. These bonds are purchased by investors, and in exchange, the government agrees to repay the borrowed amount on a specified date, while paying regular interest. It should be noted that there are three types of debt instruments on the State:

2.2.1. Assimilable Treasury Bonds:

It represents a Bond issued by the State whose essential characteristic is to be assimilable and long-term: each new tranche of issue is attached to a previous tranche of issue of which it has the same characteristics (interest rate, nominal value, maturity, repayment method, etc.). (Société de gestion de la bourse des valeurs)

The State relies on the principle of assimilation consisting of issuing a new loan offering characteristics identical to those of a loan launched previously (the facial rate, the nominal, the maturity and the repayment terms are similar) , only the price differs depending on bond market yields. (GUENDOUZI, p. 102)

Assimilable Treasury Bonds (OAT) are securities intended to finance State budget deficits. They extend over a long-term maturity which can be up to thirty years. Most of the time (Kayssa Aksil, 2013, p. 39)

2.2.2 Treasury bonds with annual interest: medium term, They have a duration of between 02 and 05 years.

2.2.3 Treasury bills with prepaid interest : They have a duration of less than one year.

It should be noted that US Treasury Sovereign Bonds have another typology: there are short-term Treasury Bonds with a maturity of less than one year. Also, fixed coupon Treasury Bonds with a maturity ranging from 2 to 10 years. And finally, long-term Treasury Bonds with a maturity of more than 10 years, reaching up to 30 years.

The U.S. government also issues other types of sovereign bonds to finance specific projects or government entities.

Sovereign bonds are important instruments in global financial markets. They are often considered relatively safe investments because governments have the ability to raise funds through taxes and other means to repay their debt.

2.3 Operation of the sovereign debt bond market

The sovereign debt bond market is a complete stock market with a primary (issuance) market and a secondary (trading) market. (Kayssa Aksil, 2013, p. 51)

SVTs (Specialists in Treasury Securities) are market makers submitting bids to the Central Bank. The latter chooses the lowest rates offered until reaching the requested amount, the value of a bond varies inversely with the interest rates .

3. Crisis in the sovereign debt bond markets:

A sovereign debt crisis occurs when governments struggle to repay their debt, which can have significant economic and financial repercussions

3.1 Definition of a sovereign debt bond market crisis:

The main features of such a crisis include:

- **Inability to Repay** : Governments may find themselves unable to repay their debt, usually due to a persistent budget deficit, economic mismanagement or external shocks such as global financial crises.

- Pressure on Financial Markets**: A sovereign debt crisis can lead to stress on financial markets, with a decline in investor confidence in the government's ability to honor its obligations. This may result in higher interest rates on sovereign debt, making it more difficult to borrow new funds.

- Impact on the Real Economy**: The consequences of the sovereign debt crisis can be felt in the real economy. Governments, facing increased fiscal pressure, may be forced to implement austerity measures, which can lead to economic contraction, increased unemployment and other social challenges.

-Contagion : Sovereign debt crises in one country can have contagion effects, affecting other economies. Global financial markets are interconnected, and a crisis in one country can trigger concerns and knock-on effects in other regions.

-International Intervention : In certain situations, international financial institutions such as the International Monetary Fund can intervene by providing economic adjustment programs and loans to help stabilize the situation.

Historical examples of sovereign debt crises include the Latin American debt crisis of the 1980s and the 1994 crisis. It is also necessary to cite the sovereign debt crisis that occurred after the 2008 global crisis, financial markets speculated on the breakup of the zone. The financial crisis extended into a public debt crisis in the Eurozone, but in this case it affected a few vulnerable countries, notably Greece and Portugal, imposing high interest rates on them.

Investing in this bond market involves risks which are different depending on whether the bond is sold before maturity or if it is held until maturity:

Default risk : This is the risk of a reduction in credit quality in the event that the issuer is a State, because to date no State has declared bankruptcy, thus leading to a drop in the net asset value of the fund. It should be noted that if a country goes bankrupt, it cannot be put into liquidation like a Company would be. The country can declare itself - or be declared - in default of payment and turn to International Institutions such as the IMF.

Interest rate risk : The sensitivity to changes in rates is greater the longer the life of the bond.

Liquidity risk : having to sell a financial instrument at a price lower than the fair price and thus generating a capital loss for the portfolio and ultimately a drop in the net asset value of the fund.

Risk linked to the impact of derivative products : The fund may use forward financial instruments, which may result in a risk of a decline in the net asset value of the fund that is more significant and rapid than that of the markets in which the Fund is invested. .

Inflation risk : the exchange risk which arises from the unfavorable movement of a foreign currency in which a bond acquired by a foreign investor is denominated.

3.2 The role of Rating Agencies

Bonds are often rated by rating agencies, such as Moody's, Standard & Poor's, and Fitch, to assess the credit risk associated with these instruments.

Rating agencies such as Standard & Poor's, Moody's and Fitch assign ratings to issuers of sovereign debt securities to assess their solvency and default risk. Ratings are generally based on criteria such as debt repayment capacity, credit quality and probability of default.

In order to control the risks linked to the solvency of bond issuers, the various Rating Agencies assign them a rating to inform the investor by issuing ratings ranging from AAA to D. The Rating Agency can also declare a country in partial or total default of payment for long-term loans as follows:

AAA: Extremely high ability to meet financial commitments. Best review.

AA+, AA, AA-: Strong ability to meet financial commitments.

A+, A, A-: Strong Ability to meet financial commitments, but somewhat sensitive to adverse economic conditions and changes in circumstances.

BBB+: Sufficient capacity to meet its financial commitments, but quite sensitive to unfavorable economic conditions.

BB+, BB, BB -: Sufficient capacity to meet its financial commitments, but quite sensitive to unfavorable economic conditions.

CCC+: Low capacity to meet financial commitments. The economy is in poor condition.

C: Very speculative*

D: In default

This sovereign debt market, like the rest of the financial markets, is therefore characterized by the importance of the role of crowd movements in the setting of exchange prices driven by imitation. The ratings of Rating Agencies send information and a signal to the financial markets. This information is followed most of the time, especially when expectations are vague. In this context, agents have an interest in following the movement of crowds and deriving the most profits from it, favoring the formation of bubbles disconnected from fundamental value .

4. Sovereign debt bond market after the COVID - 19 health crisis

In this part, we will discuss the different repercussions of the COVID-19 health crisis on the sovereign debt bond markets. This health crisis caused a slowdown in

the global supply chain and was marked by a surge in energy prices and rising inflation points.

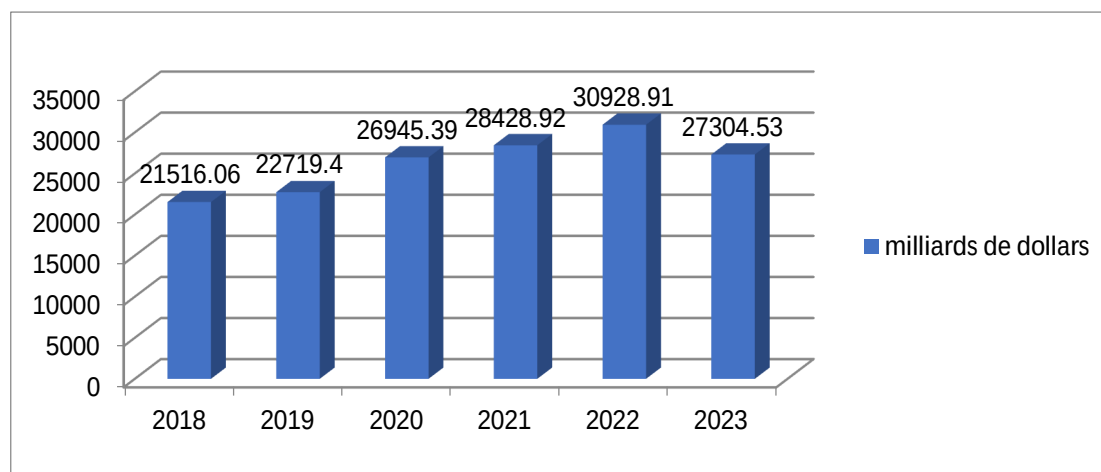
4.1 Repercussions on the bond market debt American Sovereign

The American Sovereign Debt bond market is one of the largest in the world. Each quarter, the US Treasury releases an assessment of future spending needs and publishes future issues over the next three quarters as well as an auction calendar. Also, issues of short-term securities are carried out every month. It should be noted that it issues sovereign bonds at 2, 3, 5 and 7 years, others at 10 years and T-Bonds at 30 years.

The American State did not deviate from the rule during and after the health crisis, the inflation rate increased to reach 7.9% in February 2022, and it reached 8.5% in March 2022.

As shown in diagram No. 1 below, the evolution of debts between 2019 and 2020 amplified three times more than its increase between 2018 and 2019, with an increase of 4225.99 billion dollars instead of 1203.34 billion dollars in at the beginning of 2019 and a peak in 2022 showing 30928.91 billion dollars which represents the unleashing of the health crisis.

Diagram No. 01: Outstanding public debt

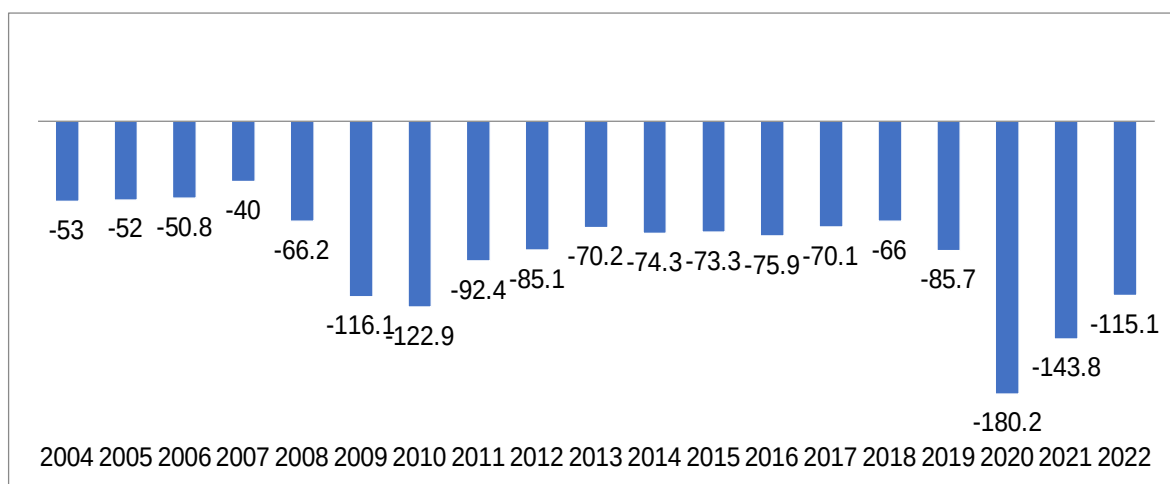


Sources: [www. Statistaca.com](https://www.statista.com) Statista Research Department

The increase in Sovereign Public Debt has led to an increase in the balance of the State which has spent enormously to deal with the health crisis, which explains that in 2022 it exceeded 30,000 billion dollars, the debt increased by 5,788 billion dollars since 2019 as shown in diagram No. 1 above.

To deal with the economic consequences of the pandemic, the American government has put in place major fiscal stimulus plans including support measures for businesses and households. This has led to an increase in the issuance of new sovereign bonds to finance these programs. An increased supply of debt can put downward pressure on bond prices and upward pressure on yields.

Diagram No. 02: The state budget balance state budget balance (in billions of euros)



Source: lafinancepourtous.com according to INSEE and the Budget Department

The COVID-19 pandemic has had a significant impact on the US Sovereign Debt bond market, creating significant uncertainty in financial markets. News regarding the spread of the virus, containment measures and economic impacts have generated increased volatility in the US Sovereign Debt bond market. Investors have faced rapid fluctuations in bond prices and yields, making risk management more complex.

The US Federal Reserve has played a crucial role in stabilizing the sovereign bond market. It has implemented bond purchase programs on the secondary market, notably US Treasury bonds, in order to maintain liquidity and support the proper functioning of the market. These interventions helped to ease tensions and restore investor confidence, despite this the repercussions of the health crisis were keenly felt.

4.2 Repercussions on the bond market for sovereign debt in the euro zone

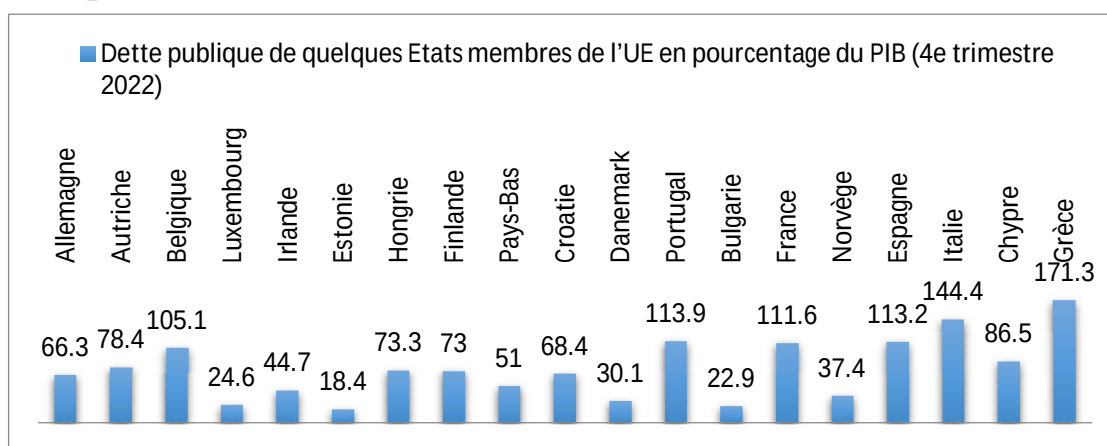
On March 18, 2020 the European Central Bank established the Emergency Securities Purchase Program (PEPP) which was a program dedicated to combating the economic consequences of the COVID-19 pandemic. The PEPP is an unconventional monetary policy measure which consists of purchasing sovereign

bonds directly on the financial markets, more precisely on the secondary market. Net purchases of securities began on March 18, 2022 and ended in March 2022.

The price of the assets concerned by this program increases under the effect of the additional demand induced by the ECB's policy. The latter thus tried to reassure the financial markets by insisting on the fact that it wants to support States in difficulty by purchasing their debts and thus avoid too sharp an increase in their bond interest rates. But this policy did not have the success that the ECB hoped for, the interest rates of the countries in the South of the Euro Zone remained very high.

During the 4th quarter of 2022, the public debt of EU member states broke new records as shown in diagram No. 3 below:

Diagram N°03: Public debt of some EU member states as a percentage of GDP (4th quarter 2022)



Source: [Eurostat](#)

Figure 3 above shows that the percentage of public debt in relation to GDP differs from one country to another; we observe a rate ranging from 18.4% for Estonia to 171.3% for Greece. In theory, a positive percentage well below 100% is a good indication for investors. To study the relationship between rating and public debt, Table No. 1 below summarizes the ratings assigned by rating agencies to European states based on their public debts

Table No. 1: Rating Agency ratings

	Public debt of some EU member states as a percentage of GDP (4th ^{quarter} 2022)	Standard & Poor's rating
Germany	66.3	AAA
Austria	78.4	AAA
Belgium	105.1	AA
Luxembourg	24.6	HAS-
Ireland	44.7	A+
Estonia	18.4	AA-
Hungary	73.3	BB+
Finland	73	AA+
The Netherlands	51	AAA
Croatia	68.4	BB
Denmark	30.1	AAA
Portugal	113.9	BB+
Bulgaria	22.9	BB+
France	111.6	AA
Spain	113.2	BBB+
Italy	144.4	BBB+
Cyprus	86.5	BB-
Greece	171.3	CCC+

Source: [Eurostat](#)

It is clear that there is a negative correlation between the percentage of public debt to GDP and the rating. However, this negative correlation presents ambiguities, because normally a correlation should be perfect. However, we note that for Belgium, despite a rate higher than 100%, its rating is AA, which represents a good rating, because it is the third highest rating in the ranking, after AAA and AA+. Bulgaria has a rate of around 20%, but the S&P Agency gives it a rating of BB+, justifying this decision by a situation of political instability.

4.3 Countries that have defaulted on their debts and others in danger zones since 2020

Lebanon self-declared itself in default for the first time on Saturday March 7, 2020, it was unable to repay \$1.2 billion of its debt. Its total debt amounts to \$92 billion, or approximately 170% of its gross domestic product.

November 2020, Zambia also failed to pay \$42.5 million in interest; it became the first country in sub-Saharan Africa to default on its sovereign debt. **In 2022, Sri Lanka is the first country to suspend its payments for the year.**

Mozambique: Mozambique has also faced significant financial difficulties, particularly due to revelations of hidden debts. The country had to restructure its debt and face economic pressures.

Ecuador renegotiated its sovereign debt in 2020 to avoid a full default. The country managed to reach an agreement with its creditors to restructure its debt and spread payments over an extended period.

Other countries are in the danger zone such as Argentina (with a rating between CCC- and CC) which, let us remember in December 2001, the country declared itself in default of payment. Also Brazil, Ecuador (with a CCC rating by Moody's and B- by the S and P agency) , Venezuela and Ukraine are in the sights of the Rating Agencies.

It should be noted that this list is not exhaustive and other countries have also faced debt and default risk issues since 2020. The COVID-19 pandemic has exacerbated financial pressures on many countries due to the global economic disruption it has caused. The long-term consequences of the pandemic continue to raise concerns about debt sustainability in many countries.

5- The markets for Credit Default Swaps sovereign CDS tools for speculation in the financial markets:

In the event of a sharp variation in rates, the value of old bonds falls because investors prefer more profitable securities.

If there is a very large variation in interest rates or the key interest rates of Central Banks increase, it is first of all the countries most sensitive to speculation which are affected, investors do not accept their lend funds only in return for a high risk premium, hence the importance of studying CDS derivative markets.

5-1- The role of sovereign CDS Credit Default Swaps markets

During a sovereign bond crisis, bondholders and other investors may use CDS to hedge against the risk of sovereign debt default. This can act as an insurance mechanism, providing financial protection in the event of default.

However, the widespread use of CDS may also amplify the effects of the crisis. If many investors hold CDS on a particular sovereign debt and that debt defaults, the massive payment of these contracts can create additional pressures on financial markets. This can contribute to financial contagion and increased volatility.

CDS can serve as a hedging mechanism during a sovereign bond crisis, but their widespread use can also have important implications for financial stability and risk contagion.

A Credit Default Swap is a derivative financial instrument. It functions as a form of insurance against the risk of default on a bond or debt. Here's how it works:

- **CDS buyer** A CDS connects two counterparties, a buyer and a protection seller. (Gex Mathieu, 2006) buyer buys a CDS to protect against the risk of default on a specific bond.

- **Seller of the CDS** Another entity, for example a bank or other financial institution, sells the CDS. In exchange for regular payments (often in the form of premiums), the seller agrees to compensate the buyer in the event of default on the underlying bond.

- **Payment Default** : Designed to meet the growing demand for credit risk reduction, designed to transfer default risk without transferring ownership of the asset. (Samah El Cheikh, 2019, p. 12) If the bond issuer defaults on its payments, the buyer of the CDS can enforce his contract and receive compensation from the seller of the CDS to compensate for the loss suffered on the bond.

It is important to note that excessive use of CDS was associated with problems during the 2008 financial crisis, contributing to market instability.

5-2 Correlations between Credit Default Swaps and rating of Rating Agencies

Payment default occurs when a country fails to make a payment, interest or principal, on an obligation, beyond the grace period granted in the contract. This credit event only triggers a payment under the CDS contract if it is accompanied by an actual payment or restructuring failure. Ultimately, restructuring is the most important event for sovereign CDS and the most likely to be triggered. This event corresponds to the reduction or renegotiation of overdue debts in order to improve or restore liquidity. This operation leads to the modification of the terms of the obligation (the reduction of the interest rate, the principal amount, or the maturity). (Samah El Cheikh, 2019, p. 15)

To study the correlation between Public Debt of some European States as a percentage of GDP and their 5-year CDS rates

Tables No. 02: correlation between Public Debt of some European States as a percentage of GDP and their 5-year CDS rates

Wording	Last	Public debt of some member states of the EU as a percentage of GDP	Note
CDS-5A NETHERLANDS	12.80	51	AAA 10
CDS-5A GERMANY	13.00	66.3	AAA 10
CDS-5A BELGIUM	21.90	105.1	AA 8
CDS-5A IRELAND	25.30	44.7	A+ 7
CDS-5A FRANCE	26.50	111.6	AA 8
CDS-5A PORTUGAL	48.00	113.9	BB+ 7
CDS-5A SPAIN	50.20	113.2	BBB+ 6
CDS-5A GREECE	78.00	171.3	CCC+ 4
CDS-5A ITALY	95.90	144.4	BBB+ 6

Source: <http://www.Bourserama.com>

The study of the correlation coefficient between 5-year CDS rates and public debt as a percentage of GDP of certain EU member states is equivalent to 0.831. It is important to note that CDS and debt-to-GDP are separate tools, and the correlation between the two can vary depending on circumstances and investor interpretations. Additionally, the percentage of debt to GDP is not the only factor to consider when assessing credit risk, and CDS are not the only instruments used to protect against default risk.

The correlation between public debt as a percentage of GDP of certain EU Member States and the rating of rating agencies should be noted. For ease of calculation, letter ratings from rating agencies are converted to numerical ratings, where a perfect AAA rating corresponds to 10 and a D rating corresponds to default, or a rating of 1. The correlation between debt and the GDP with the rating of the rating agencies is equivalent to -0.78.

Regarding the correlation between 5-year CDS rates and ratings from rating agencies, it is equivalent to -0.84. There is a correlation between CDS and ratings from rating agencies. On the one hand, when the rating agency lowers the credit rating of a debt issuer, this indicates an increased perception of default risk, which

can lead to an increase in the premiums of the corresponding CDS. Investors are willing to pay more to protect themselves against the increased risk of default.

On the other hand, ratings from rating agencies can influence CDS prices when there are significant credit events. For example, when the rating agency lowers the credit rating of a debt issuer after an adverse event, this can lead to a significant increase in the corresponding CDS premiums as investors adjust their positions to account for the increased risk

6.RESULTS AND DISCUSSION

The study aims to analyze the disruptions affecting the sovereign debt market close to a bubble burst, raising the alarm once again about the fragility of the International Financial System and the need to establish rules, particularly in matters banker and inter-bank money creation. Also, they highlight the relationship between States, the financial market and the speculative crowd

He It should be noted that the relationship between states and financial markets is often dynamic and subject to developments and variations. State policies and actions can influence financial markets, while financial market conditions can also shape policy decisions.

The uncertainty induced by the Covid-19 pandemic regarding the capacity of countries to meet their commitments and face new challenges has had several repercussions on the sovereign debt bond markets, with states becoming dependent on stock price and totally subject to disruptions in the supply chain.

The COVID-19 crisis has had significant impacts on the sovereign debt market. Many countries have increased their debt levels to finance economic recovery measures, leading to increased sovereign bond issuance. This has had consequences such as changes in interest rates and increased volatility in financial markets. Some countries have also faced pressure on their credit ratings, impacting their bond yields.

CDS are derivative financial instruments used to protect against the risk of default by a debt issuer. Rating Agencies assign ratings to debt issuers. CDS can often be issued based on these ratings, with higher insurance premiums for debt issuers deemed riskier. Agency ratings can influence the demand for and price of CDS. When a debt issuer has its rating downgraded by a Rating Agency, this may indicate an increased risk of default, which may lead to an increase in demand for CDS to protect against this additional risk, which may also result in higher rates. insurance premiums (cost of CDS) for this issuer.

CDS are also often used as one of the factors considered by Rating Agencies when assessing the creditworthiness of a debt issuer. Thus, an increase in insurance premiums (CDS) may be considered as a signal of increased risk by Rating Agencies, which in turn may result in a downward revision of the issuer's rating.

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