ASSESSING THE BENEFITS OF EUROZONE MEMBERSHIP: SOVEREIGN DEBT CLASSIFICATION AND ECONOMIC IMPACT IN SMALL AND DEVELOPING COUNTRIES

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Abstract

This study is focused on the benefits received by countries that are part of the eurozone. The data from 28 member states of the European Union (EU), as well as Balkan countries, have been used to analyse the benefits of staying in the eurozone for the period of 2001–2021. This study first checked for the stationarity of the variables using the augmented Dickey-Fuller test, the interpretation of R^2, and linear regression, as well as fixed and random models, taking into consideration that it deals with macroeconomic and fiscal data. The research hypothesis is substantiated through analysis, revealing that a country's inclusion in the eurozone positively affects its sovereign rating, positioning it 1.19 notches higher than those outside the eurozone. This finding aligns with the observations made by Martinez et al. (2022), who emphasize the positive implications of investor perceptions regarding government debt, providing easier access to financing and contributing to economic stability. Specifically examining the Europrim's impact before the COVID-19 pandemic, the study demonstrates that Balkan countries adopting the euro are positioned 9.22 places higher in sovereign debt classification. Similarly, amid the COVID-19 pandemic, these countries are listed 1.52 places above those not using the euro in sovereign debt ranking. This insight contributes to the ongoing discussion about the advantages of being part of the eurozone, especially in the context of economic and fiscal dynamics.

Keywords: Exchange Rate, Balkan Countries, European Union, Monetary Policy, Europrim

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1. INTRODUCTION

Small countries, especially developing ones, frequently assert that they will absorb as much investment as they can from various investors to build their economies. This is particularly clear at the moment, as cross-border or international investments are a growing trend. However, before making any investments, investors should consider a country's stability, its capacity to return its debts, and its level of macroeconomic and financial stability. Debt repayment is important because it serves as a picture of the situation and for classifying a country as a sovereign state. This is

because the probability of whether a state will be able to repay borrowed debt is measured through the sovereign debt of the state (Alexopoulou et al., 2010; Bellas et al., 2010; Eichengreen & Mody, 1998; Vernazza & Nielsen, 2015).

Governments frequently endorse such assessments as they facilitate access to international capital markets (Reisen & von Maltzan, 1998). Investors, conscious of the state's position on this evaluative list, determine the safety of their investment, particularly in fulfilling debt obligations. Notably, credit rating agencies, as highlighted by Eijffinger (2012), wield considerable influence, often shaping the allocation of grants a country may receive from institutions like the European Financial Stability Facility.

Recent trends and events in the global economy have a profound impact on investment decisions and sovereign debt classifications. The interconnectedness of financial markets, geopolitical developments, and the aftermath of global crises, such as the 2007–2008 financial crisis and the recent challenges posed by the COVID-19 pandemic, all contribute to shaping the economic landscape. These factors provide a critical backdrop for comprehending the dynamics of eurozone membership and its implications for sovereign debt.

While the benefits of eurozone membership are widely debated, recent academic and political literature underscores the importance of scrutinizing the advantages accruing to countries within the eurozone. Academic discourse has increasingly questioned the efficacy of the eurozone in the face of economic challenges, prompting discussions on whether membership truly enhances a country's economic resilience and fiscal stability. Moreover, political debates surrounding the expansion of the eurozone and its implications for smaller and developing countries add urgency to this inquiry.

Against this backdrop, this research assumes significance as it seeks to contribute empirical insights into the impact of eurozone membership on sovereign debt classifications, particularly focusing on the Balkan region. By addressing the current issues and debates within academic and political spheres, this study aims to provide a nuanced understanding of the advantages and challenges associated with adopting the euro currency.

Within this framework, a stable element known as Europrim, as detailed by Bluedorn et al. (2015) and Wiegand (2017), significantly contributes to the classifications of these agencies. Europrim asserts that eurozone countries enjoy a more robust classification and sustainability in the eyes of investors compared to nations outside the euro.

As we proceed, this paper will explore a comprehensive analysis of the benefits associated with eurozone membership, with a specific focus on evaluating the potential gains for Balkan countries contemplating such affiliation.

The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research on the influence of eurozone membership on sovereign debt classifications. Section 4 analyses and interprets the results findings and discussion of the research results, and finally, Section 5 offers concluding and suggesting avenues for further research.

2. LITERATURE REVIEW

In general, there have been a scarce number of studies related to debt assessment agencies. Cantor and Packer (1996) were the first to examine the issue of sovereign debt and its variables. Despite their work, the issues involving sovereign debt, until the financial crisis of 2007–2008, have not been addressed at all, or only to a small extent. The period of the recent financial crisis has placed into the spotlight various authors who have conducted research on sovereign debt assessment and the listing of states. Credit rating agencies are now playing an important role. The recent crisis has been the "bell" for attracting the attention of scholars to address this issue.

The credit rating agencies have a high impact on interest rates on sovereign bonds as well as corporate ones. The influence of these agencies is so great that White (2010) evaluates the judgements of rating agencies as having the force of law. This high authority of the rating agencies, in addition to its advantages, also has negative sides. Sometimes the downgrade of a country's ranking has remarkable effects on the markets (Hill & Faff, 2010). There is a gap in understanding the longer-term effects on countries' financing accessibility and economic stability, by creating instability and making investors uninterested in investments in a country (Brooks et al., 2004; Ferreira & Gama, 2007). Moreover, if investors view government debt as low-risk or risk-free, it can have positive implications for the economic impact and stability of these countries by facilitating easier access to financing (Martinez et al., 2022).

The sovereign debt assessment agencies analyse economic, political and social factors to assess whether a given country has the capacity to repay its debt (Afonso, 2003; Afonso et al., 2011; Chen et al., 2016). Cantor and Packer (1996) point out that two of the largest sovereign debt rating agencies, Moody's and Standard and Poor (S&P), value macroeconomic components in the same way. In examining the economic impact of sovereign debt in small and developing countries, it is crucial to acknowledge that the conclusions drawn may undergo significant adjustments when accounting for the liquidity services offered by secure government debt, particularly in situations where private borrowing constraints exist (Brunnermeier et al., 2022; Reis, 2021). This consideration adds a layer of complexity to our understanding of the pricing and sustainability of sovereign debt in these contexts. Liquidity services from sovereign debt may offer a constrained "free lunch" contingent on central bank credibility (Martinez et al., 2023).

According to Bluedorn et al. (2015), what is worth noting from the literature is that the effect of Europeanization has begun to fade since the financial crisis, which has also affected the eurozone. Unlike previous authors, Wiegand's (2017) results show that the return of euphoric privileges begins in the recovery phase, not at the same pace as before, but with a tendency to rise. This observation is particularly relevant in the context of sovereign debt assessment agencies, which play a crucial role in influencing interest rates and market stability (Heimberger, 2023). Blanchard (2019) emphasized the significance of the relationship between government bond yields and economic growth rates, sparking debates on

the nuanced considerations of debt and fiscal policy. Particularly in the context of Eurozone countries, which differ from stand-alone countries due to their unique institutional architecture, where a fully integrated monetary union exists without a corresponding fiscal union, making their sovereign debt positions more fragile and prone to self-fulfilling rollover crises because they issue debt in euros, a currency they do not control (Heimberger, 2023).

The Europrim has begun to increase in the recovery phase, given that before the crisis this indicator was quite high (Kunovac & Pavić, 2017). The surge in public debt relative to gross domestic product (GDP) during the pandemic, as indicated by the International Monetary Fund (IMF) in 2021, raises concerns about higher debt nations facing greater risks than those with lower debt ratios (IMF, 2021). Unemployment is higher in the countries that are listed lower in terms of sovereign debt repayment capacity, while GDP per capita is greater in higher-ranked countries, suggesting that this creates an indication for investors who can use these indicators as a reference point when making investments (Boumparis et al., 2017). Policymakers' decisions post the Global Financial Crisis, driven by a strong inclination to reduce debt, are widely seen as impeding a faster recovery (Blanchard, 2023). Unlike government efficiency, external debt and external reserves have a long-term impact on sovereign debt (Afonso et al., 2011). Political and economic uncertainty negatively affect the ranking of states in terms of debt repayment, by influencing their ability to repay debt securely, and this means a country is listed lower in the classification of states (Boumparis et al., 2017). Thus, fiscal variables have a greater long-term impact on the definition of sovereign debt than macroeconomic ones (Afonso et al., 2011), and credit ratings have an asymmetric effect on the financial markets (Afonso et al., 2014; Kirikkaleli & Gokmenoglu, 2020). Sovereign debt assessment agencies should be more transparent during assessment, and an international assessment body should be established (Heinemann, 2021; Vernazza & Nielsen, 2015). However, this suggestion is hardly feasible.

According to Chen et al. (2016), the revaluation of the sovereign debt rating is of great importance in a country's economic growth prospects, increasing it by 0.6% over 5 years. This affects changes in interest rates and the increase of capital. GDP growth since the last financial crisis has been placed in the spotlight as an important indicator for evaluation and determination by investors, and the rise or fall of the country under analysis (Reusens & Croux, 2017). Eurozone countries before the crisis had the same shifts in sovereign debt, but the situation changed after the financial crisis, resulting in differences (Aizenman et al., 2013). Following the financial crisis, the importance of financial balance, economic development and external debt increased significantly, influencing the effect of euroization, and reducing the benefits that the union brings to member states (Reusens & Croux, 2017).

As a territory composed of many countries, the eurozone means these countries face various crises. The most recent crisis has left many countries facing a lack of liquidity and this has prompted them to apply harsh austerity measures, raising interest rates and causing some countries to face a deep recession. In a European Union (EU) country in particular, the interest rate reflects the state of public finances (Directorate-General for Economic and Financial Affairs, 2020). Despite the severity of the pandemic crisis, the EU tried to stabilize sovereign financing conditions through borrowing for the countries in need (Directorate-General for Economic and Financial Affairs, 2021). But, since debts are indicators that come back on their own, this creates a balance (De Grauwe & Ji, 2013). So, austerity measures are not entirely appropriate, because they often do not work and increase the debt-to-GDP ratio (Vernazza & Nielsen, 2015). In the Euro crisis aftermath, fiscal discipline shaped national economic policies and influenced reforms, balancing responsibility and responsiveness (Dupuy & Van Ingelgom, 2023). Starting from those principles, the question that has risen is:

RQ1: Should a country be part of the monetary union or not?

This paper intends to provide an answer as to whether a country benefits from adopting the euro currency.

Additionally, while there is some literature on the impact of euro adoption on economic indicators such as GDP growth and unemployment rates (Aizenman et al., 2013; Bluedorn et al., 2015), there is a lack of comprehensive studies that specifically analyse the effects on sovereign debt classifications and investor perceptions, especially in Balkan countries.

This study aims to fill these gaps by examining the benefits of staying in the eurozone on sovereign debt ratings and market perceptions. This study seeks to provide a deeper understanding of how eurozone membership affects a country's sovereign rating and its position in the sovereign debt classification. Specifically, we aim to show how countries adopting the euro are positioned differently in terms of sovereign debt classification compared to those outside the eurozone, both before and during the COVID-19 pandemic. Through this analysis, our study contributes to the ongoing discussion about the advantages of being part of the eurozone, especially in the context of economic and fiscal dynamics.

3. RESEARCH METHODOLOGY AND DATA COLLECTION

Secondary data from S&P, the World Bank, Eurostat, the IMF, and the Central Bank of the Republic of Turkey (CBRT) have been utilized for this study. The variables used in this research are listed and described in the Table 1.

This research encompasses data from 28 EU member states and two non-EU countries, Kosovo and Montenegro, using the euro without a prior agreement. Additionally, Balkan Peninsula countries, including Albania, Serbia, Northern Macedonia, Bosnia and Herzegovina, Kosovo, Montenegro, and Turkey, assessed as part of the EU database, are included. The data spans a 20-year period (2001–2021).

Macroeconomic information forms an unbalanced panel database, analyzed using Stata software. To validate hypotheses, Europrim measures credit ratings' sovereignty using information from S&P, based on local currency debts. The sample consists of 595 S&P observations on countries' loan repayment ratings.

Table 1. Description of variables

Name of the variable	*Definition*	*Source*
GDP growth	How fast the economy is growing	World Bank
GDP growth per capita	GDP growth per capita	World Bank
Euro	A dummy variable. If the country is using the euro it takes a value of 1 and if it is using its currency it takes a value of 0	-
Unemployment rate	% of the total labour force	World Bank
Inflation	Prices of consumption in annual %	World Bank
External sector	External balance of goods and services	World Bank
General government balance	Net lending/borrowing (% of GDP)	Eurostat; IMF
Total gross government debt	Total gross government debt as a percentage of GDP	Eurostat; IMF
Investments	Gross capital formation (% of GDP)	World Bank
Net international investment position (NIIP)	International investments position	World Bank; CBRT
*Ranking**	Estimation of sovereign debt in local currency	S&P
Crisis 2008–2011	A dummy variable indicating whether the country has been in crisis during the period 2008–2011	IMF Working Paper (Laeven & Valencia, 2012)

*Note: * It should be noted that the evaluation of sovereign credits by S&P uses alphabetical letters. The best ranking starts with AAA, then continues with AA+, AA, AA-, ... and so on, whereas, in this study, due to the calculations, the rankings have been numbered, with each AAA rating given the number 1, then AA+ the number 2, and so on. All the ratings were coded.*

Variables were tested for stationarity using the augmented Dickey-Fuller (ADF) test before each regression. Results indicate stationarity, with some variables performing better after differentiation (Table A.2, Appendix).

In the model for sovereign debt ranking, the 2008 financial crisis was included. This study proves the crisis as a statistically significant indicator, affecting how countries are categorized.

3.1. The model used

In addition to the ordinary least squares (OLS), model used in this analysis, alternative methods such as random effects and fixed effects models were considered. However, OLS was chosen for its simplicity and ability to measure the effects of variables on sovereign debt within the defined time span. The OLS model allows for country-specific modelling by incorporating time averages of explanatory variables. While random effects and fixed effects models offer advantages in capturing unobserved heterogeneity, the OLS model was deemed most suitable for this analysis. In other words, OLS enables country-specific modelling, which means adding time averages of explanatory variables (Afonso et al., 2011).

The ranking or evaluation of sovereign debt i for every end of year t is presented as follows (Beirne & Fratzscher, 2013; Bluedorn et al., 2015; Kunovac & Pavić, 2017; Vernazza & Nielsen, 2015; Wiegand, 2017):

$$C_{it} = x_{it}\beta + \gamma_t Euro_{it} + \vartheta_t EU_{it} + \theta_t + \delta_i + u_{it}, \quad t = 1,2,\dots T \tag{1}$$

The regression model used in his study is:

$$Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i} + \beta_{11} X_{11i} + u_{it} \tag{2}$$

where, Y = sovereign debt ranking by S&P. The variable represents the classification of the state i at the end of the calendar year t; β = represents the estimated coefficient; X_1 = GDP growth; X_2 = growth of GDP per capita; X_3 = unemployment; X_4 = inflation; X_5 = external balance; X_6 = general government balance; X_7 = general government debt; X_8 = investments; X_9 = NIIP; X_{10} = the euro[1] variable is a dummy variable that takes the code 1 if the country i is in the euro area in year t, and 0 on the contrary; X_{11} = crisis; u = error term.

Beirne and Fratzscher (2013) and Wiegand (2017) discuss the impact of macroeconomic indicators on the assessment of sovereign debt, which is divided into three periods: pre-crisis, during the crisis, and after the crisis. The crisis variable is set as a dummy, encoded with 1 if the state faced a crisis during the period 2008–2011 and 0 otherwise. This dummy variable was named "crisis".

$$Crisis = \begin{Bmatrix} x_{1i} \ if \ D_i = 1 \\ x_{0i} \ if \ D_i = 0 \end{Bmatrix} \tag{3}$$

X_{1i} represents the crisis period of 2008–2011, X_{0i} represents the other period before 2008 and after 2011.

3.2. Model evaluation

In this section, the average sovereign credit ratings are presented across different categories, as outlined in Table 2.

Table 2 illustrates variations within the categories. Even without a detailed analysis, a cursory examination of the data averages indicates that countries not using the euro tend to have lower classifications, specifically in the categories BB+, BB, BB- and B+, B, B-. Additionally, the impact of the crisis is more pronounced in these countries compared to other categories. Notably, unemployment is higher in the lower-classified countries, demonstrating an inverse relationship between classification and unemployment rates. As classification increases, employment rises, and unemployment decreases, indicating that countries with higher development tend to have lower unemployment rates than developing ones.

[1] This measures the impact of the euro on the country's ranking. In this case, this variable is measured as a volatile one to better estimate the effect of the impact or benefits of using or not using the euro.

Table 2. Average sovereign credit rating

Variables	*AAA, AA+, AA, AA-*	*A+, A, A-*	*BBB+, BBB, BBB-*	*BB+, BB, BB-*	*B+, B, B-*	*CCC+, CCC, CCC-*
GDP growth per capita	1.09928	3.56151	3.136583	2.817316	3.913678	-4.524162
GDP growth	1.74973	3.735728	2.825029	2.765707	3.597329	-2.878099
Unemployment	6.830667	8.379809	11.97	17.36228	19.36404	11.79
Inflation	1.903053	2.616689	3.115972	4.293977	8.63362	2.388752
External balance	4.40e+10	-3.45e+10	1.03e+11	3.33e+10	-1.23e+11	-2.69e+08
General government balance	-1.576889	-3.17	-3.56506	-2.723596	-3.538776	-5.6
Total government debt	55.31467	48.86091	53.97349	51.41573	55.3898	80.1
Investments	22.43913	24.28559	23.26934	23.5306	25.29618	16.12081
NIIP	-3524.55	-80829.84	-150905.5	-105987	-24720.98	-25156
Euro	0.742222	0.6	0.650602	0.4	0.122449	1
Crisis	0.1155556	0.081818	0.060241	0.1777778	0.163265	1

Note: Initially the categories were divided and grouped on the basis of rankings by classifying those that have very high repayment potential as AAA, AA+, AA, and AA-, then continuing with the high-quality debt repayment states, which includes classifications A+, A, and A-. The third group includes the classifications BBB+, BBB, and BBB-, the states with adequate payment capacity, and the fourth group of BB+, BB, and BB- represents the states which have uncertainties about the fulfilment of their obligations, although it is possible that these may fulfil their obligations without any issues. The following groups can be said to be those with a high risk of debt repayment and this includes countries with the classifications B+, B, B-, and CCC+, CCC, and CCC-. Only one country is classified in this group for this panel of data.
Source: Author's elaboration.

4. EMPIRICAL RESULTS AND DISCUSSION

Table 3 shows the coefficients estimated by the model for sovereign debt valuation obtained from S&P, presenting the values of the T-test coefficient for estimating the stability of variables and the p-value for the significance of variables. As an indicator of the quality of the regression model, the coefficient of determination or R^2 is used, which indicates how much the independent variables explain the variation of the dependent variable. In the OLS model, R^2 is 84.56%, which means that 84.56% of the independent variables explain the variance in the sovereign debt ranking.

Table 3. Linear, fixed, and random model data

Variables	*Linear model*			*Fixed model*			*Random model*		
	Coefficients	*T-statistics*	*p-value*	*Coefficients*	*T-statistics*	*p-value*	*Coefficients*	*T-statistics*	*p-value*
GDP growth per capita	1.217319	7.47	0.000	0.3513715	2.63	0.009	0.4129637	3.09	0.002
GDP growth	-1.124433	-6.62	0.000	-0.4126996	-3.03	0.003	-0.4736769	-3.47	0.001
Unemployment	0.377247	16.11	0.000	0.2254581	9.56	0	0.2435945	10.39	0
Inflation	0.2760768	7.71	0.000	0.0496332	3.06	0.002	0.0537164	3.23	0.001
External balance	1.15E-12	2.77	0.006	6.81E-13	3.64	0	6.81E-13	3.55	0
General government balance	-0.1171191	-2.31	0.021	0.0492098	2.3	0.022	0.0518342	2.36	0.018
Total government debt	0.0142031	2.82	0.005	0.0715709	15.11	0	0.0676003	14.3	0
Investments	0.497391	2.96	0.003	0.075378	3.2	0.001	0.0761311	3.19	0.001
NIIP	-7.19E-07	-1.32	0.187	5.47E-07	1.38	0.168	5.16E-07	1.29	0.199
Euro	-1.198561	-4	0	-0.183511	-0.52	0.606	-0.4205193	-1.21	0.228
Crisis	-1.260285	-2.7	0.007	-0.276094	-1.46	0.146	-0.2687762	-1.38	0.167
R^2	0.8456			0.64			0.6461		

Source: Author's elaboration.

Table 3 offers a comprehensive view of the coefficients and their statistical significance in different models.

The discussion reveals the importance of GDP per capita, emphasizing its role as a crucial indicator for sovereign debt listing. Chen et al. (2016) suggest that the positive correlation between state ranking and GDP per capita reflects future market growth and current market reforms, influencing per capita income and, consequently, valuation.

The subsequent analysis explores the impact of GDP growth per capita on the state ranking, uncovering a negative relationship. The rate of income increases in developing countries drives demand for debt, leading to higher debt costs. The paper argues that higher GDP per capita growth correlates with a lower state ranking in terms of debt repayment.

Similarly, the discussion expresses the inverse relationship between unemployment and ranking. A noteworthy highlight is the significance of the overall government balance, as a reduction in total government debt positively impacts the state's ranking, acting as an incentive for investors.

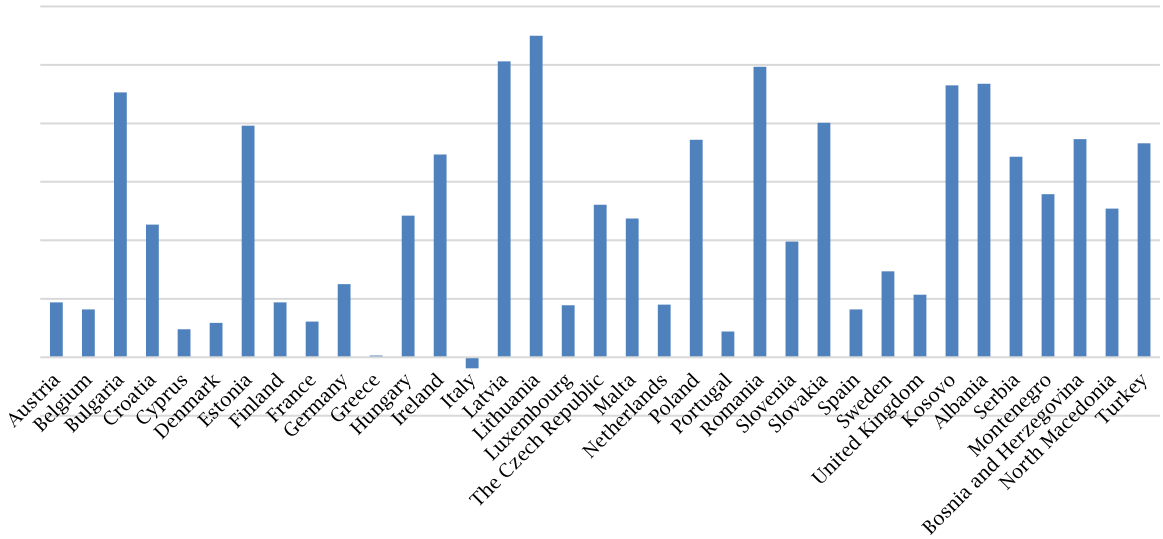
Furthermore, the study underscores the advantages of staying in the eurozone, emphasizing Europrim's impact on sovereign debt classifications. The stability and attractiveness of eurozone member countries, utilizing the euro, contribute to a favourable environment for borrowing.

The GDP per capita is an important indicator for listing countries in terms of sovereign debt. Chen et al. (2016) state that this positive correlation between state ranking and GDP per capita is a result of the correlation with changes that may occur, e.g., future market growth and current market reforms, which may lead to higher per capita income and, as a result, higher valuation. In other words, the increase in the GDP per capita increases tax revenues, as well as the tax fund, which corresponds to the increase in the state treasury and the ability of the state to repay its obligations (Boumparis et al., 2017). As reasoned by Boumparis et al. (2017) and supported by Chen et al. (2016) the GDP per capita is an important indicator that shows the degree of development of a country. However, in this paper, the growth of GDP per capita is taken as

a variable and this justifies the negative relationship between the growth of GDP per capita and the ranking.

The rate of increase in income for developing countries increases the demand for debt, causing debt costs to rise and, as a result, supply fluctuations. Based on the principle that countries that are growing increase their spending, GDP growth per capita affects the increase of the state listing by 1,217 countries lower, ranking it as the weakest payer or one with a greater potential for poor debt repayment. So, if the GDP per capita increases by 6 then the country will be listed lower by 7.26 countries. Table 3 shows that GDP growth per capita is higher for A+ to BBB- classifications, including the category of developing countries. The average GDP growth per capita for the years 2001 to 2017 is summarized in Figure 1. Subsequently, it is noted that highly developed countries have lower GDP per capita growth than developing countries, as these countries have higher populations compared to GDP and are smaller in size.

Figure 1. Average GDP growth per capita for the period 2001–2017



Source: Author's elaboration.

As a result, it was stressed that GDP is one of the most crucial economic indicators since it measures annual growth from the current year compared to the previous one and continues in a chain, revealing the actual state of the economy. Despite being a significant indicator, GDP did not receive considerable attention until the financial crisis. Many scholars now use the GDP for a decision-making analysis of the economic crisis (Boumparis et al., 2017; Reusens & Croux, 2017). In these cases, how fast the economy is growing is measured, so GDP growth is an indicator that shows that economically a country is moving towards recession or expansion. In economic terms, a decline in GDP affects the growth of unemployment and in this paper, the growth of GDP affects the reduction of the state ranking, bringing it 1,124 positions lower than previously. If the GDP is increased by 2, then the state ranking will improve by 2,248 countries more than before. Therefore, GDP growth affects the ability of the state to repay its sovereign debt (Afonso et al., 2011).

In contrast to this, with the increase in unemployment, the ranking increases by 0.377 places lower than previously. This affects the change in the state listing in terms of sovereign debt repayment. By analysing this in economic terms, the overall government balance sheet has emerged as a significant variable because it represents the impact of fiscal policy on the ranking of sovereign debt repayments. If the total government debt is reduced by 3 units, this will result in an increase in the state's ranking in terms of sovereign debt by 0.043 countries. Such a ranking acts as a positive incentive for investors. The most important thing for investors is the security offered by the monetary union. If the country is within the monetary union, it will be listed among 1,198 countries within the best classification. Staying within the eurozone brings benefits to a country, as it can borrow more cheaply than other countries with similar economies, all as a Europrim of the adoption of the euro. In other words, it benefits a country to be ranked higher in the list of classifications, as in the case of Croatia, which, although not falling behind with debt repayments, is not listed very high in the list of classifications (Kunovac & Pavić, 2017), because Croatia is not in the eurozone and does not use the euro. Despite the loss of benefits, a country can be in a safer place for debt repayment. Therefore, staying in the eurozone itself brings benefits by making a country more attractive and stable without being affected by fluctuations.

Moreover, the eurozone's member countries use the euro, which results in less pronounced exchange rate fluctuations and greater exchange rate stability. This is also one of the advantages of using the euro. In other words, the Europrim is high enough for countries that use the euro. Although according to Bluedorn et al. (2015), the effect of Europrim has started to fade, this argument cannot be supported, because our study highlights the fact that Europrim has a high impact, as is confirmed by

some authors in their analyses, such as Wiegand (2017) and Kunovac and Pavić (2017) stating that the effect of Europrim is increasing. Kunovac and Pavić (2017) also explain that the effect of Europrim was very high before the crisis before starting to contract during the crisis, and after the crisis, it started to increase again. This is also related to the fact that the crisis is an important variable in determining a state's ranking in terms of sovereign debt repayment. The financial crisis has caused many indicators to change, causing the rankings within the list to shift, thus moving countries 1.26 places lower.

Let us examine the effects on Balkan countries to determine whether it is more beneficial for them to join the eurozone. Therefore, we will investigate the impact of Europrim on EU member states, with a specific focus on Balkan countries. Our decision to specifically focus on Balkan countries within our analysis is grounded in strategic considerations that enrich the overall context of our study. The Balkans present a diverse economic landscape, encompassing nations at different stages of development. This diversity allows us to explore the nuanced impact of eurozone membership on sovereign debt dynamics across various economic profiles. Emphasizing that many Balkan nations express a keen interest in joining the eurozone in the future. Our analysis, therefore, not only captures the current economic scenarios but also provides insights into the potential benefits and challenges these countries may face on their path to eurozone accession.

By selecting the Balkan region for our in-depth analysis, we aim to offer a more comprehensive understanding of the impact of eurozone membership, considering the unique characteristics and challenges prevalent in this specific geographic context.

The regression results for Balkan countries are presented in Table 4, comparing the linear model before and after the COVID-19 pandemic.

Table 4. Regression for Balkan countries

Variables	*Linear model before COVID-19*			*Linear model after COVID-19*
	Coefficients	*T-statistics*	*p-value*	*Coefficients*
GDP growth per capita	1.005089	3.75	0.000	-0.1822757
GDP growth	-1.090826	-4.08	0.000	0.2239809
Unemployment rate	0.2009745	9.41	0.000	0.2538648
Inflation	0.1159131	4.03	0.000	0.0423643
External balance	-4.51E-13	-0.23	0.818	-3.90E-13
General government balance	0.0752612	1.01	0.317	-0.107165
General government debt	0.0874784	10.06	0.000	0.0478069
Investments	0.1515211	7.03	0.000	0.2029278
NIIP	-0.00000112	-5.05	0.000	-1.90E-06
Euro	-9.228076	-8.94	0.000	-1.524145
Crisis	0.8764768	1.43	0.155	

Source: Author's elaboration.

Table 5 demonstrates the statistical significance of each variable, providing insight into their impact on sovereign debt ranking.

The discussion highlights the significance of economic growth, emphasizing that higher GDP growth positively influences a country's standing in repaying sovereign debt. The analysis underscores the importance of GDP per capita growth, particularly for the Balkan countries, shedding light on the connection between economic development and debt repayment capability.

Moreover, the text delves into the significance of the "euro" variable, emphasizing its substantial influence on Balkan countries. The findings suggest that eurozone membership contributes significantly to a country's higher position in the sovereign debt repayment list, showcasing the stability and credibility associated with using the euro. The text skillfully integrates economic principles, empirical findings, and relevant literature to elucidate the nuanced impact of the "euro" variable.

From Table 5 above, it is clear that essentially every variable proves to be significant from a statistical perspective, and the sign of each is accurate.

Due to the necessity of measuring a country's economic growth and determining how quickly it is moving, GDP growth was analysed first. The analysis shows that this variable, which has significant economic influence, indicates that the country list is for the 1.09 countries above if the variable increases per one unit. Therefore, a country's standing in terms of repaying its sovereign debt will improve the higher its rate of economic growth. The GDP growth per capita is a crucial indicator for the Balkan countries, as it is for other countries. The GDP per capita of developing countries is higher than that of developed ones, and if GDP increases per capita, the state's listing in terms of the repayment of its sovereign debt will decrease by one unit.

The explanation for this phenomenon is that when GDP per capita rises, so does the demand for debt, which in turn impacts how much debt costs to buy. All of this will ultimately have an impact on how the supply fluctuates. The state drops down the classification list for repaying sovereign debt due to fluctuations in supply.

In our case, this variable is likewise statistically insignificant because the Balkan countries attempt to maintain a balanced external balance by balancing exports and imports. However, the economic value of this variable is relatively high, affecting the country listing for sovereign debt.

This study notes that the variable "euro" has a significant influence, particularly for the Balkan countries. As a result, the Balkan countries greatly profit from the euro. Even if the COVID-19 pandemic and the war in Ukraine have influenced the euro, the findings indicate that a country that uses the euro will be rated 1.5 positions higher on the list. This demonstrates that using the euro has a significant advantage over non-euro countries. As a result of the euro's economic stability, euro-using countries are seen as more credible. Countries that do not use the euro have higher debt interest rates due to fluctuations in the flexible exchange rate.

As a result, countries that use the euro have greater exchange rate stability than those that have a flexible relation with the euro, like the Balkan countries, which are susceptible to exchange rate fluctuations. The risk of exchange rate changes is higher for non-euro area countries, and it is an indicator that also influences where such countries rank in terms of the repayment of sovereign debt, prompting them to be listed lower as a result of this risk. As De Grauwe and Ji (2013) concluded, the history of the eurozone is one of self-fulfilling debt crises, for countries are forced to enter a recession and reduce the effectiveness of austerity programmes. The combination of high interest rates and deep recessions risks a liquidity crisis (De Grauwe & Ji, 2013).

5. CONCLUSION

In light of the primary objective to assess the advantages of persistent eurozone membership for Balkan countries, this study has clarified the many benefits associated with remaining in the eurozone and, consequently, the monetary union.

This study underscores the advantages of persistent eurozone membership for Balkan countries, highlighting the benefits of remaining in the eurozone and the monetary union. The analysis emphasizes the significance of Europrim and the advantages of eurozone membership, including lower borrowing costs, elevated sovereign ratings, stable exchange rates, and reduced currency fluctuations. Unlike previous studies, this paper introduces the crisis variable throughout the time series, leading to more accurate results regarding the impact of macroeconomic indicators on country rankings for sovereign debt repayment.

Remaining in the eurozone is deemed advantageous. The adoption of the euro contributes to an elevated sovereign rating, enhancing a country's appeal and stability while mitigating the impact of economic fluctuations. Countries within the eurozone, utilizing the euro, experience more stable exchange rates and reduced currency fluctuations, substantiating the advantageous impact of Europrim on eurozone member countries.

Policymakers in Balkan countries should strategically plan their fiscal policies, aiming for modest budget deficits and meticulous public debt management. Embracing conservative fiscal practices, like those observed in eurozone countries, can contribute to lower debt costs and enhance sovereign ratings. The study advocates for Balkan countries to contemplate joining the eurozone judiciously and each of them should assess its unique economic circumstances before deciding to enter the eurozone.

These findings, derived directly from regression analyses, emphasize the critical role of debt cost reduction. Particularly crucial for developing Balkan countries needing to borrow and refinance in the future, this reduction is attributed not only to the adoption of the euro but also to the conservative fiscal policies prevalent in eurozone countries, characterized by modest budget deficits and meticulous public debt management.

Moreover, policymakers are encouraged to leverage the benefits of Europrim, emphasizing the reduction of transaction costs, increased competition, and enhanced trade. Crafting policies that align with these objectives can position Balkan countries for a more seamless integration into the eurozone. Investors and financial institutions can gain confidence from our study's findings. The stability and appeal associated with eurozone membership can influence investment decisions and contribute to overall economic stability.

The study offers a foundation for long-term economic planning. Policymakers can use the insights to anticipate the impact of macroeconomic indicators on sovereign debt rankings, enabling proactive planning for economic fluctuations.

In conclusion, this paper serves as a valuable reference for countries reassessing their currencies, exploring alternative currency adoption, or contemplating entry into a monetary union. It provides insights and analyses that can aid countries in evaluating the benefits and costs associated with adopting a reference currency, contributing to informed decision-making and effective policy formulation.

However, it is important to acknowledge some limitations of the research. The study primarily focuses on the benefits of eurozone membership and may not fully explore potential drawbacks or challenges associated with adopting the euro. Future research could delve deeper into these aspects to provide a more comprehensive analysis.

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APPENDIX

Table A.1 Correlation between the three largest credit rating agencies

	Moody's	***S&P***	***Fitch***
Moody's	1.00		
S&P	0.97	1.00	
Fitch	0.98	0.98	1.00

Source: Vernazza and Nielsen (2015).

Table A.2. Augmented Dickey-Fuller test

Variables	*GDP growth per capita*		*GDP growth*		*Unemployment rate*		*Inflation*		*External sector*		*General government balance*		*Total gross government debt*		*Investments*		*NIIP*		*S&P*	
	Statistic	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*	*Statistic*	*p-value*
Inverse chi-squared (2) P	118.72	0.00	108.86	0.00	146.55	0.00	300.75	0.00	115.34	0.00	118.82	0.00	381.07	0.00	139.90	0.00	163.16	0.00	276.99	0.00
Inverse normal Z	-3.19	0.00	-2.62	0.00	-1.73	0.04	-9.96	0.00	-3.32	0.00	-2.49	0.00	-4.63	0.00	-3.96	0.00	0.61	0.73	-0.80	0.20
Inverse logit t(4) L*	-3.44	0.00	-2.78	0.00	-3.49	0.00	-13.18	0.00	-3.36	0.00	-3.03	0.00	-13.21	0.00	-4.34	0.00	-4.96	0.00	-7.43	0.00
Modified inv. chi-squared Pm	4.11	0.00	3.28	0.00	6.47	0.00	19.50	0.00	3.83	0.00	4.12	0.00	26.29	0.00	5.90	0.00	9.08	0.00	17.92	0.00
Labs	1		1		5		1		1		1		6		1		6		6	

Source: Author's elaboration.