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New evidence on the macroeconomic, fiscal and political drivers of sovereign bond spreads in the EMU

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Abstract

This paper assesses the relevance of macroeconomic, fiscal and political factors as determinants of sovereign yield spreads for 15 Euro Area Member States, using quarterly data for the period Q1:1999–Q4:2024. The results show that fiscal fundamentals, inflation and liquidity stress are the main drivers of spreads, while the QE regime reduced the sensitivity of spreads to debt levels. Political influences are selective: electoral periods raise sovereign risk only in highly indebted countries, whereas liberalising reforms are associated with lower spreads. Overall, the findings highlight the regime-dependent nature of sovereign risk pricing and provide updated evidence on how fiscal and political information is incorporated under different policy environments, offering a clearer understanding of how markets reassess sovereign risk as institutional and macro-financial conditions evolve.

Keywords: Sovereign Spreads, Fiscal Policy, Politics, EMU
JEL: E43, E62, D72; H63

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1. Introduction

During recent decades, high living standards and consumption in several euro area member states were sustained through the accumulation of substantial debt, facilitated by the creation of the EMU, which brought low interest rates and eliminated exchange rate and inflation risks. Although stronger domestic demand can support GDP growth, when production is insufficient to meet rising debt-service costs, public debt dynamics may become unsustainable, increasing the likelihood of default (e.g. Afonso et al., 2015).

The 2009 financial crisis exposed severe fiscal vulnerabilities in several EMU countries, triggering a sharp reassessment of sovereign risk. The severe deterioration of Greece's public finances raised concerns about a potential default and the risk of contagion to other member states, prompting a flight-to-safety and widening sovereign spreads, particularly in Greece, Ireland and Portugal (Bernoth et al., 2012; Ehmann and Fratzscher, 2015). Mounting market pressures eventually forced these countries to request external financial assistance under the newly created European Financial Stability Facility (EFSF). The launch of the ECB's unconventional monetary policies in 2015, notably through the Asset Purchase Programme (APP), contributed to a significant reduction in government bond yields and helped narrow spreads vis-à-vis Germany (e.g. Afonso and Jalles, 2019).

In 2020, the COVID-19 pandemic heightened financial market uncertainty and compelled governments to increase public spending to preserve economic activity and employment. Once again, the ECB — in line with other central banks — responded by announcing the Pandemic Emergency Purchase Programme (PEPP), enabling large-scale purchases of public and private securities and injecting liquidity into financial markets (e.g. Carnazza and Liberati, 2021).

Against this backdrop, controlling public debt interest rates and understanding their determinants is a central concern for fiscal and monetary authorities seeking to stabilise public finances. At the same time, the literature shows that fiscal policy is often shaped by electoral incentives, giving rise to political budget cycles (e.g. Rogoff and Sibert, 1988, Eyraud et al., 2017), and that investors may react to political factors such as government stability or the implementation of structural reforms (Bettarelli et al., 2025). These issues are likely to gain renewed relevance as the EMU enters a phase of fiscal rule reform, monetary policy normalisation and heightened economic and geopolitical uncertainty. The withdrawal from large-scale asset purchases, the reactivation of fiscal constraints and the post-pandemic recovery further underscore the need to understand how sovereign spreads respond to macro-financial fundamentals, political dynamics and shifts in the policy regime. Understanding these mechanisms is essential for assessing fiscal sustainability and the effectiveness of the EMU's institutional architecture.

Nevertheless, despite the existing literature on the determinants of government bond yields, the empirical relevance of political and electoral factors remains insufficiently explored. Moreover, the major regime shifts associated with Quantitative Easing — and particularly those triggered by the pandemic crisis — are still poorly addressed in the literature.

In this context, this paper addresses the following question: what factors explain the evolution of sovereign bond spreads in the EMU, and how have macroeconomic, fiscal and political conditions shaped these dynamics across major policy regimes?

To answer this question, the study examines how these determinants operate within a monetary union characterised by a high degree of economic integration, a shared institutional framework and exposure to common shocks. Despite these similarities, member states displayed heterogeneous policy responses and recovery trajectories, generating meaningful within-union variation that provides a valuable source of identification for uncovering the underlying drivers of sovereign spread dynamics.

Using quarterly data for 15 EMU countries over the period 1999–2024 and a Two-Stage Least Squares model with country fixed effects, the analysis shows that inflation, liquidity stress, the debt ratio and the primary balance (both expressed as a percentage of GDP) are the main determinants of 10-year sovereign bond spreads. The results also indicate that the COVID-19 pandemic contributed to a convergence in member states' financing costs, while the launch of QE programmes reduced the relevance of public debt levels for investors. Furthermore, the study finds that electoral periods tend to heighten concerns about sovereign risk in the most indebted countries, and that the adoption of liberalising reforms is positively perceived by private investors.

In sum, this article contributes to the literature in three main ways. First, it provides an updated EMU-wide assessment of the determinants of sovereign spreads, jointly incorporating macroeconomic, fiscal and political factors. Second, it advances the discussion on how political and electoral dynamics influence the financing costs of EMU member states. Third, it documents three novel findings: the convergence of financing costs during the pandemic; the heightened sensitivity of sovereign spreads to electoral cycles in highly indebted countries; and the reduced relevance of indebtedness levels for risk premia following the introduction of QE.

The paper is organised as follows. Section 2 reviews the relevant literature. Section 3 outlines the methodology and data, while Section 4 presents the empirical analysis. Section 5 concludes.

2. Literature Review

As defined in Barbosa and Costa (2010), the risk premium of a bond depends on issuer-specific factors and corresponds to the return investors demand to compensate for the possibility that future cash flows will not match the contractual terms because of a default. Differences in credit risk premia should therefore reflect each country's specific characteristics, which influence the magnitude of interest rate changes.

The literature also shows that, following the collapse of Lehman Brothers and the onset of the global financial crisis, investors reassessed credit risks and markets exhibited heightened risk aversion. Whereas public debt-to-GDP ratios had previously received limited attention, they became central indicators for investors, alongside large budget deficits, and are now among the most frequently examined variables in empirical studies (Klepsch and Wollmershäuser, 2011; De Grauwe and Ji, 2013; Afonso and Jalles, 2019). Baldacci and Kumar (2010) further highlight the importance of the budget balance for interest rate behaviour, noting that its impact depends on initial fiscal conditions and on the broader financial environment. Overall, the literature suggests that macroeconomic fundamentals—such as public debt, the budget balance and inflation—explain a substantial share of long-term sovereign yield variation (Laubach, 2009; Poghosyan, 2014).

Economic stability also plays a crucial role in controlling interest rates. Afonso and Jalles (2019) show that volatility in macroeconomic fundamentals tends to worsen sovereign financing conditions. In addition, the characteristics of sovereign securities themselves matter. Recent research has documented the relevance of factors such as outstanding amounts, maturity, currency composition and contractual features (Tomz and Wright, 2013).

Alongside these findings, expectations regarding fiscal performance can trigger significant changes in sovereign interest rates, potentially worsening fiscal indicators and contributing to the emergence of sovereign debt crises. Afonso and Rault (2015) provide evidence consistent with this view, showing that long-term determinants related to fiscal positions, debt dynamics and sustainability help explain movements in sovereign yields. Investors also consider expectations regarding inflation, the current account balance and the exchange rate. Similarly, Constantini et al. (2014) also identify expectations about the debt-to-GDP ratio as an indicator of fiscal imbalances and a driver of higher risk premia.

Beyond macro-financial fundamentals, a growing literature highlights the role of political determinants in debt sustainability and, consequently, in sovereign risk premia. Political budget cycles may lead governments to adopt expansionary fiscal policies ahead of elections, increasing perceived fiscal risks (Rogoff, 1990; Vergne, 2009). Although the Maastricht Treaty introduced supranational fiscal rules that reduced national fiscal autonomy (Andrikopoulos et al., 2004), pro-cyclical expansionary policies have still been observed, weakening fiscal buffers (Vergne, 2009). Consistent with this, Villavicencio and Oriola (2025) show that, despite strong fiscal constraints, EU countries tend to raise regional spending and cut taxes before national elections.

Investors also respond to political uncertainty. Balduzzi et al. (2023) show that political risk shocks negatively affect domestic financial markets and generate spillovers to sovereign spreads. Shülts and Pape (2024) find that exposure to populist parties raises the return required by investors, with stronger effects for left-wing populism. Similarly, Brooks et al. (2022) report that the election of left-leaning parties increases volatility in sovereign bond markets, reflecting uncertainty about future policy outcomes, particularly when a new government takes office. In addition, Constantini and Sousa (2022) find that rising economic policy uncertainty leads investors to demand a disproportionately higher premium on 'risky' bonds relative to safe-haven securities.

Alongside domestic political dynamics, institutional features of the EMU also shape sovereign risk premia. De Grauwe and Ji (2013) argue that the sovereign debt crisis stemmed from the EMU's institutional design: member states issue debt in a common currency without control over the monetary authority and therefore cannot guarantee liquidity in times of stress. Unlike 'stand-alone' countries, which rely on their own central bank as a lender of last resort, EMU governments are more exposed to liquidity shocks and shifts in market sentiment, making them vulnerable to self-fulfilling crises and flight-to-safety dynamics. During the financial crisis, Germany acted as a "safe haven", and spreads relative to German yields became a standard measure of sovereign risk (Bernoth et al., 2012). The determinants of these spreads also shifted over time: before the crisis, fundamentals had limited explanatory power and market risk dominated, whereas after the Lehman collapse credit quality and liquidity factors gained prominence (Barbosa and Costa, 2010; Klepsch and Wollmershäuser, 2011; Afonso et al., 2015).

Regarding the relevance of QE on sovereign yield spreads, Afonso and Jalles (2019) found that the non-conventional ECB policies, namely through the Covered Bond Purchase Programme (CBPP) and the long-term refinancing operations contributed to reduce spreads in the EMU, at least, until 2016. Also, Broeders et al. (2022), analysing the sovereign bonds of Italy, Ireland, Spain and Portugal, show that that QE lowered the effect of volatility on sovereign bond spreads by 1 to 2 pp.

Concerning the pandemic crisis, Moessner and Haan (2022) observed that the ECB's PEPP announcement significantly reduced sovereign risk premia in the EMU, with a stronger effect on higher-risk member states. In the same vein, Rebucci et al (2022) provide evidence that the QE measures were effective during the pandemic crisis, particularly in government financing costs. However, even though the ECB helped ease market tensions, the pandemic was perceived as an asymmetric shock, as countries with higher pre-Covid debt ratios experienced sharper increases in interest rates and higher perceived default risk (Carnazza and Liberati, 2021). In addition, Van den End (2025) argues that the excess liquidity created by QE can raise sovereign bond spreads in the euro area through the safe-asset channel. In volatile markets, higher demand for tradeable safe assets depresses their yields and widens spreads, suggesting that this channel dominates the usual portfolio-rebalancing mechanism and that large-scale asset purchases are ill-suited to addressing country-specific shocks.

Overall, while the literature identifies a wide set of macro-financial, political and institutional drivers of sovereign spreads, evidence remains mixed regarding their relative importance across different regimes and crises, and the role of political determinants remains comparatively underexplored. This motivates a reassessment of government spread determinants using updated data and a framework that jointly accounts for fundamentals, political dynamics and policy interventions.

3. Methodology and Data

3.1. Baseline Specification

Although the EMU member states share a high degree of economic integration, a common institutional framework, a common currency and face common fiscal rules, they exhibited heterogeneous financing costs and divergent fiscal strategies. This variation within a shared framework offers a unique opportunity to identify structural patterns.

Thus, we set a typical reduced-form specification (e.g. Poghosyan, 2014; Afonso et al., 2015; Perović 2015), to capture the potential effect of macroeconomic, fiscal and political factors on long-term sovereign yield spreads:

$$Spread_{it} = \alpha + \beta Spread_{it-1} + \gamma Spread_{it-2} + \delta Growth_{it} + \varphi REER_{it} + \pi Inflation_{it} + \omega ECB\_R_t + \varepsilon VIX_t + \tau Liq_t + \theta X_{it} + \phi_i + \lambda_i + u_{it}$$

where, $Spread_{it}$ denotes the dependent variable, i.e., the 10-year government bond yield spread relative to Germany, and $Spread_{it-1}$ and $Spread_{it-2}$ are lagged values, included to capture persistence, and to ensure a dynamically well-specified model. A specification with only the first lag exhibits some serial correlation in the residuals, while including the second lag removes this issue without altering the main economic conclusions.

$Growth_{it}$ represent the real GDP growth rate, reflecting each country's capacity to generate income and service its debt (e.g. De Grauwe and Ji, 2013), and $REER_{it}$ is the logarithm of the real effective exchange rate, included to capture credit risk associated with macroeconomic imbalances and external competitiveness. Thus, an increase in $REER_{it}$ reflects a real exchange rate appreciation and a decline in competitiveness, which is expected to widen the sovereign spreads (e.g. Arghyrou and Tsoukalas, 2011; Afonso et al., 2015).

$Inflation_{it}$ is the quarterly average year-on-year inflation rate, and ECB_R_t represents the ECB's deposit facility rate, included to capture the influence of monetary policy conditions on sovereign yield spreads.

VIX_t is the logarithm of the annual average of the S&P 500 stock market volatility index, included as a proxy for international market risk and volatility (Afonso et al., 2015), and Liq_t is the TED spread – the difference between the interest rates on interbank loans and the yield on short-term US government debt – included as a proxy for liquidity stress in the financial market. An increase in either variable signals lower liquidity or a higher market volatility, which is expected to trigger a flight-to-safety effect and widen sovereign bond spreads.

Moreover, X_{it} reflects the fiscal variables at percentage of GDP, consistent with the literature's view that, in a monetary union, sovereign spreads largely capture country-specific default risk (e.g. De Grauwe and Ji, 2013; Afonso et al., 2015; Perović, 2015). Lastly, α is the constant term, while ϕ_i and λ_i represent time and country-specific effects and u_{it} is the error term.

As can be verified in Gómez-Bengoechea and Arahuetes (2018), who provide a synthesis of the main categories of determinants identified in the literature as relevant for sovereign risk in European countries, the variables selected in this study align closely with these classifications and cover almost all the corresponding domains. Specifically, the model incorporates determinants related to the financial system, international risk and the external sector, economic activity and debt management.

In a first step, the model includes country fixed effects to control for all time-invariant differences across countries that could bias the estimates. In an extended specification, both country and time fixed effects are added to absorb common shocks affecting all countries in each period, ensuring that identification relies on within-country variation while removing unobserved heterogeneity and period-specific global influences.

Potential endogeneity of lagged spreads, growth and fiscal variables was addressed by instrumenting these variables with their own lags, as they may adjust contemporaneously to movements in sovereign spreads and thus generate simultaneity. The third and fourth lags of the spread, and the first and second lags of the fiscal ratios and growth, were used as instruments; these lags are strongly correlated with current values due to persistence yet are plausibly predetermined with respect to contemporaneous shocks to sovereign spreads. The remaining regressors were treated as exogenous to country-specific spreads and were used as their own instruments.

As a robustness check, the baseline specification was re-estimated using the Arellano–Bond dynamic panel GMM estimator. While the baseline 2SLS model includes both the first and second lags of the spread to capture persistence, the Arellano–Bond specification adopts a more parsimonious dynamic structure. The resulting estimates display stable coefficients and a well-behaved J-statistic, indicating that the second lag is sufficient to capture the autoregressive component in this framework.

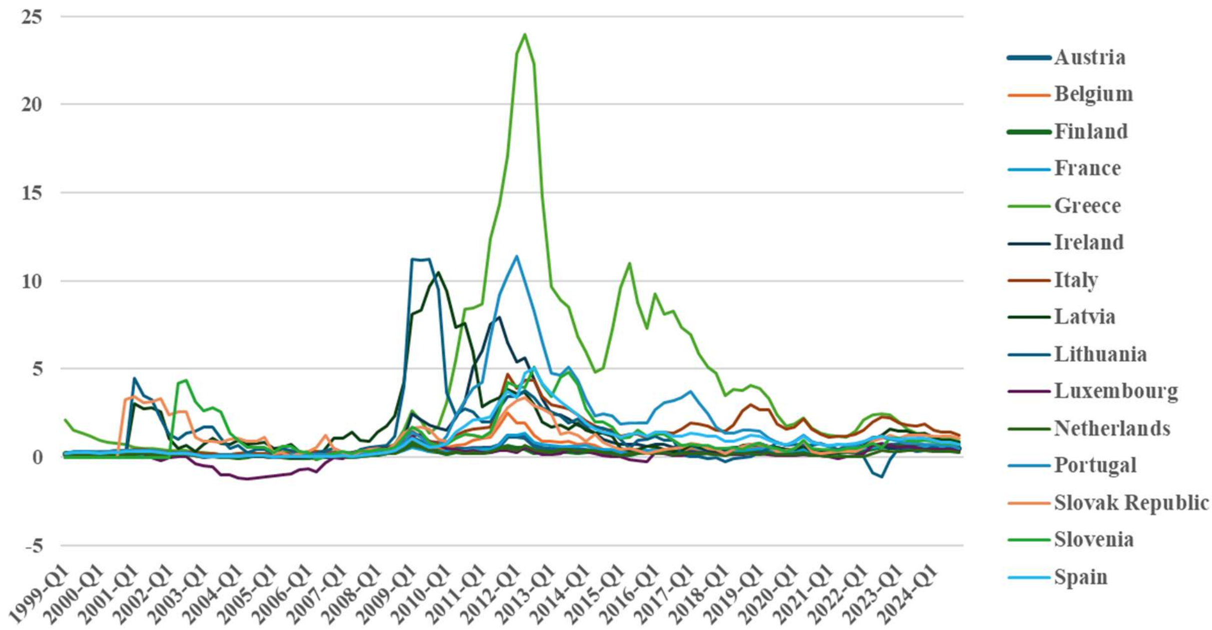
Nevertheless, given the structure of the model — in which most regressors can reasonably be treated as exogenous or predetermined — the two-stage least squares (2SLS) approach remains the most appropriate framework for the present article (Afonso et al., 2015), as it provides greater transparency in instrument selection and avoids the instrument proliferation that can compromise the reliability of GMM-based inference.

3.2. Data

The sample consists of quarterly panel data for 15 Euro Area Member States (Austria, Belgium, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Portugal, Slovakia, Slovenia and Spain) covering the period from Q1:1999 to Q4:2024. Figure 1 displays the 10-year government bond yield spreads relative to Germany.

The data sources, variable definitions and summary statistics are reported in Tables A1 and A2 of the Appendix, while Table A3 summarises the electoral events used to identify the "de facto" Executive Leaders in the Euro Area. Table A4 presents the correlation matrix.

Figure 1 - 10-year euro area government bond yield spreads, Q1:1999 – Q4:2024



Notes: Author's elaboration. Data from OECD database.

4. Empirical analysis

4.1. Baseline Specification

This section reports the results from the baseline specification and a series of extensions, examining how 10-year government bond spreads respond to financial conditions and macroeconomic fundamentals.

The empirical results presented in Table 1 provide robust evidence on the determinants of sovereign bond spreads in the Euro Area. Across all specifications, spreads appear to be highly persistent, as indicated by the size and significance of the lagged dependent variables.

Although inflation may help reduce the debt-to-GDP ratio in nominal terms, it is associated with higher spreads, with contrasts with the literature regarding the first decade of the century. Also, global market volatility and liquidity stress—proxied by the VIX index and the TED spread, respectively— are consistent with a flight-to-safety pattern. Public debt also plays a significant role in widening sovereign spreads, while the primary balance exerts a mitigating effect.

The results highlight the relevance of the main fiscal variables, which are perceived by investors as signals of fiscal sustainability and, therefore, as key determinants of financing costs. The coefficients of the debt and primary balance are statistically significant across all specifications and are consistent with the existing finding on the literature, such as on Poghosyan, 2014, Afonso et al. (2015), Perović (2015), Gomez-Bengoechea and Arahuetes (2018).

A statistically significant coefficient for real GDP growth is found in the OLS fixed-effects models (columns 1, 2 and 3), pointing to a negative influence on spreads. However, when controlling for potential endogeneity through 2SLS and Arellano–Bond GMM (columns 4 and 5), this effect vanishes, suggesting that the initial estimates may be contaminated by endogeneity bias. This finding is in line with previous empirical contributions (e.g. Poghosyan, 2014) and is consistent with the non-linear relationship between economic growth and debt dynamics documented in the literature (e.g. Reinhart and Rogoff, 2010; Checherita-Westphal and Rother, 2012).

Finally, the logarithm of the ECB policy rate is only statistically significant in the Arellano–Bond specification (column 5), and the real effective exchange rate and is not significant for all the estimations. The ECB policy coefficient might indicate that, in periods of monetary normalisation, policy tightening is interpreted as a credibility signal that reduces perceived sovereign risk, a mechanism that becomes visible only once the persistence of spreads and endogeneity concerns are more thoroughly addressed. This interpretation aligns with the positive coefficient on inflation: higher inflation tends to widen sovereign spreads by signalling macroeconomic pressures, while a tightening of monetary policy may be perceived as a credible response to those pressures, thereby reducing risk premia.

Table 1. Results of the baseline specification, Q1:1999 – Q4:2024

	(1)	(2)	(3)	(4)	(5)
$Spread_{t-1}$	1.159*** (0.026)	1.156*** (0.026)	1.135*** (0.026)	1.401*** (0.168)	1.184*** (0.011)
$Spread_{t-2}$	-0.276*** (0.026)	-0.257*** (0.025)	-0.268*** (0.025)	-0.492*** (0.140)	-0.306*** (0.007)
$Growth_t$	-0.017*** (0.006)	-0.019*** (0.006)	-0.034*** (0.007)	0.003 (0.014)	-0.002 (0.012)
$REER_t$	0.032 (0.207)	-0.082 (0.150)	-0.285* (0.180)	0.033 (0.272)	0.068 (0.072)
$Inflation_t$	0.033*** (0.010)	0.028*** (0.009)	0.018* (0.010)	0.032*** (0.014)	0.048*** (0.014)
ECB_R_t	0.000 (0.025)			0.010 (0.029)	0.010 (0.013)
VIX_t	0.162** (0.062)			0.114 (0.092)	0.113 (0.068)
$Liquidity_t$	0.088** (0.038)			0.116** (0.047)	0.159*** (0.025)
$Debt_t$	0.004*** (0.001)	0.001*** (0.000)	0.003* (0.001)	0.004** (0.002)	0.006* (0.002)
$P\_Balance_t$	-0.009** (0.004)	-0.013*** (0.004)	-0.010** (0.004)	-0.026** (0.016)	-0.035*** (0.006)
$Constant$	-0.715 (1.07)	0.301 (0.677)	1.285 (0.858)	-0.673 (1.376)	
Country Fixed Effects	Yes	-	Yes	Yes	-
Time Fixed Effects	-	Yes	Yes	-	-
Obs.	1342	1507	1507	1312	1327
Prob (J-Stat.)	-	-	-	0.427	0.537
Durbin-Watson Stat.	2.046	2.060	2.071	2.499	-
Instrument Rank	-	-	-	28	15
R^2	0.907	0.918	0.920	0.895	-

Note: * indicates the level of significance of 10%, ** a level of 5% and *** a level of 1%. In brackets we report the robust standard errors. Obs. are the observations for each regression.
Column 1 and reports the estimates using country and time fixed effects, respectively, while Column 3 includes both country and time fixed effects. Column 4 presents 2SLS estimates with country fixed effects, and Column 5 reports results from an Arellano–Bond GMM specification.
Global variables are omitted in specification (2) and (3) due to perfect collinearity with time fixed effects. In the Arellano–Bond specification (5), the second lag of the dependent variable was dropped due to collinearity.

4.2. Fiscal drivers under exceptional conditions

This section, which serves as a robustness check, examines the fiscal determinants of sovereign bond spreads while explicitly accounting for major regime shifts that shaped market dynamics over the past decade. By distinguishing between periods of normal market functioning, pandemic-related disruption and large-scale balance-sheet intervention, the specification recognises that the transmission of fiscal information to sovereign risk is not constant over time and allows us to assess the stability of the baseline results. The analysis isolates the contribution of core budgetary fundamentals by controlling for the temporary shock associated with the COVID-19 pandemic and the prolonged phase of unconventional monetary policy under the ECB's quantitative easing framework.

The $COVID_t$ dummy captures a transitory shock rather than a structural regime (column 1). It is therefore included only in the baseline specification to isolate its immediate effect but omitted from interaction models that focus on longer-term regime shifts such as QE. The variable takes the value 1 from Q1:2020 to Q2:2023 and 0 otherwise.

In addition, to allow for potential non-linearities in the relationship between public debt and sovereign spreads, the specification includes the squared debt term ($Debt_t^2$). This extension captures the possibility that the marginal effect of debt on spreads varies with the level of indebtedness, for instance increasing more sharply at higher debt ratios or flattening when markets perceive debt as sustainable. The results for this specification are presented in column 2.

To account for the fiscal policy framework, the weighted score of the Fiscal Rule Index (FRI_t), compiled by the European Commission, is included to reflect the strength and credibility of national fiscal rules (column 3). The index summarises the design, coverage and enforcement of domestic fiscal rules, capturing institutional features that influence fiscal behaviour beyond observed budgetary outcomes. Incorporating the FRI therefore helps to understand how differences in institutional fiscal discipline affect sovereign spreads.

To capture the period during which the ECB's quantitative easing (QE_t) framework was in place, a dummy variable is constructed that takes the value 1 from Q1:2015 to Q4:2024 and 0 otherwise (column 4). This timing corresponds to the launch of the ECB's Asset Purchase Programme (APP) in early 2015, with net asset purchases continuing until mid-2022 and reinvestments maintained until the end of 2024. The dummy therefore captures the full QE regime, during which sovereign bond markets operated under an expanded balance-sheet policy and a markedly altered monetary–financial environment. The analysis also examines whether the QE regime altered the sensitivity of sovereign spreads to key fiscal fundamentals (columns 5 and 6). The interaction terms show that the relationship between spreads and these variables changes under QE, suggesting that unconventional monetary policy reshaped how fiscal and macroeconomic conditions were priced by markets. This points to a regime-dependent adjustment in spread dynamics.

According to the results in Table 2, across all specifications, the core variables from the baseline model — including lagged spreads, real GDP growth, inflation, public debt and the primary balance — retain their expected signs and remain statistically significant in most cases. This consistency across extended specifications, which incorporate regime dummies, institutional controls and interaction terms, provides strong evidence of the robustness of the baseline results and reinforces the credibility of the estimated relationships.

The negative and statistically significant coefficient on the COVID dummy (column 1) indicates that sovereign spreads declined during the pandemic period, even after controlling for macroeconomic fundamentals, global risk and fiscal conditions. Although somewhat counterintuitive, this result is consistent with the interpretation of COVID-19 as a symmetric shock and with the unprecedented institutional response that followed. The combination of large-scale asset purchases, the suspension of fiscal rules and the coordinated EU policy response acted as a credible backstop, limiting sovereign risk differentiation. Consequently, markets did not price an additional risk premium during the pandemic, unlike the fragmentation dynamics seen in the euro area debt crisis.

In column (2), the squared debt term is not statistically significant, indicating that there is no robust evidence of non-linearities in the relationship between public debt and sovereign spreads within this specification. This suggests that, once persistence, macroeconomic conditions and global risk factors are controlled for, the effect of debt on spreads is approximately linear, with no detectable acceleration of risk premia at higher levels of indebtedness. The result is consistent with Afonso et al. (2015) in terms of sign and magnitude, although not in terms of statistical significance.

Regarding the relevance of the FRI index (column 3) in assessing whether stronger fiscal frameworks contribute to lower sovereign risk, the coefficient displays the expected negative sign but is not statistically significant. Thus, the presence of more stringent fiscal rules may not exert a detectable independent effect on sovereign spreads and does not appear to influence market pricing beyond what is already captured by underlying fiscal performance and broader economic conditions.

Moreover, the inclusion of the QE dummy in column (4), which accounts for the large-scale asset purchases, yields a negative and statistically significant coefficient. This suggests that, as expected, sovereign spreads were lower during the QE period. The result indicates that the ECB's quantitative easing programme contributed to a reduction in perceived sovereign risk across euro area countries, in line with the literature on central bank interventions and market stabilisation (e.g. Afonso and Jalles, 2019; Moessner and Haan, 2022).

Lastly, according to the results in column (5), the interaction between public debt and QE is negative and statistically significant, indicating that the impact of debt on sovereign spreads is attenuated during the QE period. This suggests that unconventional monetary policy may have partially offset the risk-enhancing effect typically associated with higher debt levels. By contrast, column (6) shows that the interaction between the primary balance and QE is not statistically significant, implying that the market's response to fiscal effort does not appear to change under QE. Overall, these results point to an asymmetric moderating role of QE, affecting the pricing of debt stocks but not fiscal flows.

Table 2. Sovereign spreads determinants: baseline and fiscal and regime specifications

	(1)	(2)	(3)	(4)	(5)	(6)
$Spread_{t-1}$	1.439*** (0.162)	1.388*** (0.170)	1.414*** (0.119)	1.448*** (0.162)	1.457*** (0.160)	1.396*** (0.168)
$Spread_{t-2}$	-0.532*** (0.133)	-0.481*** (0.142)	-0.519*** (0.098)	-0.539*** (0.162)	-0.549*** (0.133)	-0.494*** (0.138)
$Growth_t$	0.007 (0.013)	0.002 (0.014)	0.012 (0.011)	0.006 (0.013)	0.006 (0.014)	0.001 (0.014)
$REER_t$	0.134 (0.267)	-0.007 (0.281)	0.168 (0.245)	0.056 (0.274)	-0.045 (0.283)	0.036 (0.270)
$Inflation_t$	0.036*** (0.014)	0.033*** (0.014)	0.020* (0.011)	0.030** (0.014)	0.031** (0.014)	0.031** (0.013)
ECB_R_t	-0.007 (0.029)	0.013 (0.030)	-0.022 (0.031)	-0.027 (0.036)	-0.025 (0.032)	0.014 (0.030)
VIX_t	0.215* (0.093)	0.112 (0.092)	0.185* (0.090)	0.153 (0.096)	0.152* (0.093)	0.152* (0.084)
$Liquidity_t$	0.110** (0.045)	0.116*** (0.047)	0.134*** (0.043)	0.130*** (0.049)	0.133*** (0.049)	0.099** (0.044)
$Debt_t$	0.006*** (0.002)	0.007* (0.004)	0.004* (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.005*** (0.002)
$P\_Balance_t$	-0.026* (0.016)	-0.025* (0.015)	-0.007* (0.015)	-0.019* (0.016)	-0.002 (0.015)	-0.030* (0.018)
$COVID_t$	-0.258* (0.115)					
$Debt_t^2$		-0.000 (0.000)				
FRI_t			-0.007 (0.007)			
QE_t				-0.122* (0.073)		
$Debt_t * QE_t$					-0.002** (0.001)	
$P\_Balance_t * QE_t$						0.030 (0.020)
$Constant$	-1.510 (1.343)	-0.572 (1.393)	-1.300 (1.266)	-0.847 (1.387)	-0.435 (1.414)	-0.854 (1.332)
Obs.	1313	1312	1195	1312	1312	1312
Prob (J-Stat.)	0.362	0.426	0.488	0.426	0.398	0.431
Durbin-Watson Stat.	2.568	2.478	2.248	2.570	2.586	2.510
Instrument Rank	29	29	29	29	29	29
R^2	0.893	0.896	0.912	0.893	0.893	0.900

Note: * indicates the level of significance of 10%, ** a level of 5% and *** a level of 1%. In brackets we report the robust standard errors. Obs. are the observations for each regression.
Two Stage Least Squares (2SLS) fixed effects panel estimates, which account for endogeneity, are reported. The instruments used were the third and fourth lags of the spread, and the first and second lags of the fiscal ratios and growth, while the remaining regressors were treated as exogenous to country-specific spreads and were used as their own instruments.

4.3. Political drivers of sovereign spreads

This section provides an additional robustness check and examines the political and electoral factors that may influence sovereign spreads by presenting a set of extended specifications that incorporate electoral cycles and reform activity into the baseline model. The regressions build on the core macro-financial and fiscal determinants previously identified, allowing the analysis to assess whether political conditions exert an independent influence on spreads or whether their effects materialise only under specific fiscal environments. By progressively introducing political variables and their interactions with high-debt contexts, the table provides a systematic evaluation of how markets price political uncertainty.

To capture the presence of the electoral period, the dummy variable $Elections_t$ is included, taking the value 1 in the quarter of the electoral act and in the preceding quarter. This specification is intended to reflect both the uncertainty surrounding electoral outcomes and the risk of politically motivated increases in public spending that may compromise debt sustainability (e.g. Rogoff, 1990; Constantini and Sousa, 2022). To account for political instability unrelated to elections, the $Minority_t$ dummy identifies governments with limited parliamentary support, which are more exposed to political crises.

The relevance of liberalising reforms, and as a proxy for political ideology, is captured through the Index of Economic Freedom ($Reform_t$), designed by The Heritage Foundation. This index provides a composite measure of institutional and policy conditions affecting economic freedom, summarising countries' performance across dimensions such as the rule of law, government size, regulatory efficiency and market openness.

Lastly, the $High\_Debt_t$ dummy identifies debt ratios above 90% of GDP, distinguishing periods in which fiscal conditions are sufficiently fragile for political developments to have heightened relevance for sovereign risk. Elevated debt levels tend to increase market sensitivity to uncertainty, making political events more likely to influence perceptions of creditworthiness. Interacting political variables with this indicator therefore allows the analysis to determine whether their effects are amplified when fiscal space is limited.

According to the results provided in Table 3, all specifications confirm the dominant role of macro-financial and fiscal fundamentals in explaining sovereign spreads. Debt, primary balance, inflation and liquidity are consistently significant and correctly signed across all models, while the VIX is only marginally significant in the specification of column (5).

In column (1), the election dummy shows no meaningful average effect on spreads, indicating that electoral periods, taken in isolation, are not systematically priced by markets. However, when interacted with the $High\_Debt_t$ indicator in column (2), the effect becomes positive and statistically significant, suggesting that elections matter primarily in highly indebted countries. In these contexts, markets appear to interpret electoral cycles as episodes of heightened fiscal and policy risk, anticipating either pre-electoral spending slippages or post-electoral uncertainty regarding consolidation strategies, and therefore demanding a higher sovereign risk premium.

Regarding governments with minor parliamentary support (columns 3 and 4), the results indicate no systematic influence on sovereign spreads, either when considered in isolation or when controlling for high-debt environments. This absence of significance suggests that markets do not mechanically penalise minority governments, possibly because parliamentary fragmentation does not necessarily translate into fiscal slippage or policy instability. Moreover, while in some European countries minority cabinets may be viewed as a source of political instability, potentially raising the likelihood of early elections, in other contexts they operate under formal or informal support arrangements that ensure policy continuity. Such arrangements may reduce the informational content of parliamentary strength for investors, limiting the extent to which minority status affects sovereign risk.

As for the adoption of liberalising reforms (columns 5 and 6), the estimates show a mitigating effect on sovereign spreads, suggesting that investors perceive such reforms—and the underlying liberal policy orientation—as conducive to a lower risk premium. In this sense, reform-oriented governments appear to benefit from an additional credibility premium that is not captured by the standard macro-financial controls. Also, the negative association between liberalising activity and spreads is consistent with the findings of Brooks et al. (2022), who document investors' preference for governments not supported by left-wing parties, and with Bettarelli et al. (2015), who argue that market-oriented reforms promote debt sustainability.

These results suggest that political factors matter for sovereign risk only under particular fiscal conditions, while macro-financial and fiscal fundamentals remain the main drivers of spreads. Overall, markets appear to price political developments selectively, responding chiefly when fiscal space is limited or when reforms signal credible policy commitment.

Table 3. Sovereign spreads determinants: baseline and political specifications

	(1)	(2)	(3)	(4)	(5)	(6)
$Spread_{t-1}$	1.401***	1.370***	1.394***	1.400***	1.409***	1.417***
	(0.170)	(0.168)	(0.168)	(0.166)	(0.167)	(0.166)
$Spread_{t-2}$	-0.493***	-0.466***	-0.485***	-0.491***	-0.503***	-0.510***
	(0.142)	(0.140)	(0.140)	(0.139)	(0.138)	(0.138)
$Growth_t$	0.002	-0.000	0.002	0.003	0.006	0.007
	(0.014)	(0.013)	(0.014)	(0.014)	(0.013)	(0.013)
$REER_t$	0.031	0.002	0.060	0.071	0.261	0.262
	(0.273)	(0.262)	(0.273)	(0.272)	(0.280)	(0.280)
$Inflation_t$	0.032**	0.034**	0.033**	0.033**	0.031**	0.032**
	(0.014)	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)
ECB_R_t	0.010	0.008	0.013	0.012	-0.006	-0.004
	(0.029)	(0.026)	(0.029)	(0.029)	(0.029)	(0.030)
VIX_t	0.111	0.105	0.110	0.112	0.151*	0.146
	(0.092)	(0.086)	(0.092)	(0.092)	(0.092)	(0.093)
$Liquidity_t$	0.114**	0.109**	0.115**	0.114**	0.116**	0.117*
	(0.047)	(0.044)	(0.047)	(0.047)	(0.047)	(0.047)
$Debt_t$	0.005***	0.004***	0.005***	0.005***	0.004**	0.005**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$P\_Balance_t$	-0.026*	-0.025*	-0.026*	-0.026*	-0.027*	-0.027*
	(0.016)	(0.015)	(0.016)	(0.016)	(0.011)	(0.016)
$Elections_t$	0.053	-0.013				
	(0.064)	(0.066)				
$Elections_t * High\_Debt_t$		0.251**				
		(0.134)				
$Minority_t$			0.058	0.099		
			(0.082)	(0.102)		
$Minority_t * High\_Debt_t$				-0.104		
				(0.146)		
$Reform_t$					-0.022**	-0.021*
					(0.011)	(0.011)
$Reform_t * High\_Debt_t$						-0.001
						(0.002)
$Constant$	-0.665	-0.520	-0.790	-0.879	-0.300	-0.347
	(1.380)	(1.373)	(1.382)	(1.375)	(1.422)	(1.421)
Obs.	1312	1312	1312	1312	1312	1312
Prob (J-Stat.)	0.397	0.371	0.435	0.432	0.412	0.416
Durbin-Watson Stat.	2.505	2.456	2.488	2.500	2.520	2.531
Instrument Rank	29	30	29	30	29	30
R^2	0.895	0.898	0.896	0.895	0.895	0.894

Note: * indicates the level of significance of 10%, ** a level of 5% and *** a level of 1%. In brackets we report the robust standard errors. Obs. are the observations for each regression.
Two Stage Least Squares (2SLS) fixed effects panel estimates, which account for endogeneity, are reported. The instruments used were the third and fourth lags of the spread, and the first and second lags of the fiscal ratios and growth, while the remaining regressors were treated as exogenous to country-specific spreads and were used as their own instruments.

5. Conclusions and policy implications

This paper provides new evidence on the macroeconomic, fiscal and political determinants of sovereign bond spreads in the EMU over the period 1999–2024, highlighting how these relationships evolved across major policy environments.

The results confirm that sovereign spreads remain primarily driven by fiscal fundamentals—namely public debt, the primary balance and inflation—together with global risk and liquidity conditions. These findings reinforce the central role of credible fiscal positions in safeguarding market confidence, particularly in a monetary union where member states do not control the currency in which they issue debt.

The analysis also shows that the COVID-19 shock temporarily compressed financing costs across the EMU, while the QE period significantly altered how markets priced fiscal information, reducing the sensitivity of spreads to debt levels. These results suggest that large-scale asset purchases can attenuate market discipline, although such effects may not persist once monetary policy normalises.

Political factors also play a selective but meaningful role. Electoral periods increase sovereign risk only in highly indebted countries, indicating that political uncertainty is priced mainly when fiscal space is limited. Conversely, the adoption of liberalising reforms is associated with lower spreads, suggesting that structural reform efforts act as a credibility signal valued by investors.

Overall, the findings offer an updated perspective on sovereign spread dynamics in the EMU, showing that the transmission of fiscal information is shaped by shifts in the policy environment and that political influences emerge primarily when fiscal conditions are weak. By documenting these regime-dependent patterns, the analysis sharpens existing empirical evidence and clarifies how markets reassess sovereign risk across different institutional and macro-financial contexts.

Future research could further explore the heterogeneity of political effects across different types of elections or coalition structures, examining the role of fiscal councils and independent institutions, or assessing how the new EU fiscal rules reshape the interaction between fiscal policy, political dynamics and sovereign risk. High-frequency data and market-based measures of uncertainty may also offer valuable insights into the transmission of political and fiscal information to sovereign yields.

From a policy perspective, the findings underscore the importance of maintaining sound fiscal positions, particularly as the EMU transitions away from unconventional monetary policy. Strengthening national fiscal frameworks, ensuring transparent medium-term budgetary planning and sustaining reform momentum can help anchor market expectations and mitigate risk premia. As fiscal rules are redesigned and monetary conditions tighten, the interaction between fiscal discipline, political dynamics and market perceptions will remain central to safeguarding debt sustainability in the EMU.

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Appendix

Table A1. Data definition and sources

Variable	*Sample*	*Definition*	*Source*
Spread	Q1:1999-Q4:2024	10-year government bond yield (differential vs. Germany)	OECD
Growth	Q1:1999-Q4:2024	Quarterly YoY growth rate of real GDP	Eurostat
REER	Q1:1999-Q4:2024	(Log of) Real effective exchange rate (deflator: Unit Labour Costs)	Eurostat
Inflation	Q1:1999-Q4:2024	Annual rate of change of HICP (adjusted for quarterly data)	Eurostat
ECB_R	Q1:1999-Q4:2024	ECB Deposit Facility Rate for Euro Area (adjusted for quarterly data)	FRED
VIX	Q1:1999-Q4:2024	(Log of) S&P 500 implied stock market volatility index (adjusted for quarterly data)	FRED
Liquidity	Q1:1999-Q1:2022	(Log of) TED Spread - interest rates on interbank loans vs yield on US government debt	FRED
Debt	Q1:1999-Q4:2024	Government consolidated gross debt (% GDP)	Eurostat
P_Balance	Q1:1999-Q4:2024	Net lending/net borrowing, excluding interests (% GDP)	Eurostat
COVID	Q1:1999-Q4:2024	Binary variable for COVID-19 pandemic (1=Yes, 0=No)	WHO
FRI	Q1:1999-Q4:2023	Weighted score of the Fiscal Rule Index (adjusted for quarterly data)	DGEcfin
QE	Q1:1999-Q4:2024	Binary variable for the APP and PEPP programmes (1=Active, 0=Otherwise)	ECB
Elections	Q1:1999-Q4:2024	Binary variable for electoral periods (election quarter and preceding quarter) (1=Yes, 0=No)	REPDEM
Minority	Q1:1999-Q4:2024	Binary variable for governments with minor parliamentary support (1=Yes, 0=No)	REPDEM
Reform	Q1:1999-Q4:2024	Index of Economic Freedom (adjusted for quarterly data)	The Heritage Foundation

Table A2. Summary statistics, full panel, 1999–2024.

Variable	*Mean*	*Std. Dev.*	*Min.*	*Max.*	*Obs.*
Spread	0.943	2.181	5.460	-23.980	1560
Growth	2.250	4.341	-21.500	28.100	1560
REER	4.617	0.127	4.062	5.131	1560
Inflation	2.623	2.863	-3.867	21.567	1560
ECB_R	1.120	1.492	-0.500	4.000	1560
VIX	2.941	0.327	2.333	4.071	1560
Liquidity	-1.104	0.646	-2.572	0.895	1395
Debt	71.012	40.545	6.800	212.90	1513
P_Balance	-0.605	4.739	-39.200	13.800	1560
COVID	0.135	0.341	0.000	1.000	1560
FRI	9.068	5.378	0.067	21.877	1356
QE	0.385	0.487	0.000	1.000	1560
Elections	0.132	0.339	0.000	1.000	1560
Minority	0.111	0.314	0.000	1.000	1560
Reform	68.560	6.402	53.200	82.600	1560

Table A3. Summary of electoral acts, full panel, 1999–2024.

Country	*Election Years*	*Type*	*"De facto" Executive Leaders*
Austria	1999, 2002, 2006, 2008, 2013, 2017, 2019, 2024	Legislative Elections	Chancellor
Belgium	1999, 2003, 2007, 2010, 2014, 2019, 2024	Federal Elections	Prime Minister
Finland	1999, 2003, 2007, 2011, 2015, 2019, 2023	Parliamentary Elections	Prime Minister
France	2002, 2007, 2012, 2017, 2022	Presidential Elections	President
Greece	2000, 2004, 2007, 2009, 2012, 2015, 2019, 2023	Parliamentary Elections	Prime Minister
Ireland	2002, 2007, 2011, 2016, 2020, 2024	General Elections	Taoiseach
Italy	2001, 2006, 2008, 2013, 2018, 2022	General Elections	Prime Minister
Latvia	2002, 2006, 2010, 2011, 2014, 2018, 2022	Parliamentary Elections	Prime Minister
Lithuania	2000, 2004, 2008, 2012, 2016, 2020, 2024	Parliamentary Elections	Prime Minister
Luxembourg	1999, 2004, 2009, 2013, 2018, 2023	General Elections	Prime Minister
Netherlands	2002, 2003, 2006, 2010, 2012, 2017, 2021, 2023	General Elections	Prime Minister
Portugal	1999, 2002, 2005, 2009, 2011, 2015, 2019, 2022, 2024	Legislative Elections	Prime Minister
Slovakia	2002, 2006, 2010, 2012, 2016, 2020, 2023	Parliamentary Elections	Prime Minister
Slovenia	2000, 2004, 2008, 2011, 2014, 2018, 2022	Parliamentary Elections	Prime Minister
Spain	2000, 2004, 2008, 2011, 2015, 2016, 2019, 2023	General Elections	Prime Minister

Table A4. Correlation Matrix, full panel

	Liquid.	*REER*	*VIX*	*Debt*	*ECB_R*	*Elect.*	*Growth*	*Inflat.*	*FRI*	*COVID*	*Minor.*	*Reform*	*Spread*	*P_Balan.*
Liquidity	1.00	0.01	0.20	-0.19	0.57	0.02	-0.09	0.19	-0.27	-0.38	-0.05	-0.01	-0.04	0.17
REER	0.01	1.00	-0.01	0.17	-0.20	-0.02	-0.27	-0.09	0.10	0.09	0.06	0.26	0.13	-0.20
VIX	0.20	-0.01	1.00	-0.10	0.34	0.02	-0.31	0.11	-0.23	0.26	0.01	0.06	0.04	-0.21
Debt	-0.19	0.17	-0.10	1.00	-0.35	-0.02	-0.25	-0.34	0.27	0.16	0.08	-0.57	0.36	-0.08
ECB_R	0.57	-0.20	0.34	-0.35	1.00	0.02	0.13	0.37	-0.63	-0.34	-0.10	-0.01	-0.18	0.21
Elections	0.02	-0.02	0.02	-0.02	0.02	1.00	0.01	0.00	-0.02	-0.03	0.03	0.00	0.04	-0.01
Growth	-0.09	-0.27	-0.31	-0.25	0.13	0.01	1.00	0.21	-0.06	-0.03	0.03	0.17	-0.33	0.25
Inflation	0.19	-0.09	0.11	-0.34	0.37	0.00	0.21	1.00	-0.26	0.01	-0.07	0.09	-0.08	0.11
FRI	-0.27	0.10	-0.23	0.27	-0.63	-0.02	-0.06	-0.26	1.00	0.36	0.20	0.06	-0.05	0.02
COVID	-0.38	0.09	0.26	0.16	-0.34	-0.03	-0.03	0.01	0.36	1.00	0.11	0.10	-0.07	-0.25
Minority	-0.05	0.06	0.01	0.08	-0.10	0.03	0.03	-0.07	0.20	0.11	1.00	-0.01	0.01	-0.08
Reforms	-0.01	0.26	0.06	-0.57	-0.01	0.00	0.17	0.09	0.06	0.10	-0.01	1.00	-0.31	-0.01
Spread	-0.04	0.13	0.04	0.36	-0.18	0.04	-0.33	-0.08	-0.05	-0.07	0.01	-0.31	1.00	-0.22
P_Balance.	0.17	-0.20	-0.21	-0.07	0.21	-0.01	0.25	0.11	0.01	-0.25	-0.07	-0.01	-0.22	1.00