



# Sovereign Risk and Fiscal Sustainability: A Cross Country Analysis

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## Abstract

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This study examines how sovereign risk and fiscal sustainability interact across advanced and emerging economies in an environment of high public debt and recurrent shocks. Using a systematic literature review, it synthesizes evidence on how public debt dynamics, fiscal reaction behaviour, institutional frameworks, and climate related factors are reflected in market based measures of sovereign risk such as bond yields and credit default swap spreads. The findings indicate that high and rising debt levels, weak or delayed fiscal adjustment, and fragile institutions are associated with higher sovereign borrowing costs and greater vulnerability to fiscal crises. At the same time, climate vulnerability, natural disasters, and the transition to a low carbon economy increasingly affect sovereign creditworthiness by depressing growth, eroding tax bases, and raising contingent liabilities. Overall, the review highlights that meaningful assessments of fiscal sustainability must integrate debt dynamics, fiscal policy responses, institutional credibility, and long horizon climate risks and robust well designed fiscal rules in order to identify policy configurations that support sustainable public finances and resilient market access.



## **1. Introduction**

Sovereign risk and fiscal sustainability have reemerged as core policy concerns in the aftermath of the global financial crisis, the euro area debt crisis, and, more recently, the COVID-19 pandemic. Many countries entered the pandemic with already elevated public debt ratios; emergency fiscal packages then pushed debt to historic highs, raising questions about governments' ability to service obligations without triggering sharp increases in sovereign spreads or loss of market access. Recent evidence shows that high public debt is a powerful predictor of fiscal crises, even in environments where interest rates are low, highlighting that “debt is not free” and that fiscal space can erode abruptly when investors reassess sovereign risk (Moreno Badia et al., 2022). At the same time, sovereign credit risk is increasingly priced in bond yields and CDS spreads, with market reactions tightly linked to perceptions of fiscal fundamentals and policy credibility (Augustin et al., 2022; Zheng, 2023).

In theory, a government's intertemporal budget constraint implies that fiscal policy is sustainable when primary balances respond sufficiently to rising debt, stabilizing the debt to GDP ratio over the long run. Empirical research has operationalized this notion through fiscal reaction functions and panel tests of cointegration between revenues, expenditures, and debt. For advanced economies, studies find that sustainable fiscal behavior is not uniform: while some country groups exhibit a strong positive response of primary surpluses to lagged debt, others especially crisis prone periphery countries show weaker adjustment and higher vulnerability to sovereign stress (Magazzino et al., 2019; Polat & Polat, 2021). For

emerging and developing economies, panel evidence from Asia and other regions suggests that fiscal sustainability is closely intertwined with exposure to external shocks, institutional quality, and the credibility of fiscal rules (MackiewiczŁyziak & Łyziak, 2019; Bui, 2020; Sakuragawa, 2020).

New sources of sovereign risk further complicate the fiscal sustainability landscape. Climate related shocks, natural disasters, and the transition to a low carbon economy affect growth, tax bases, and contingent liabilities, feeding back into sovereign creditworthiness. Recent work documents that climate risks are increasingly reflected in sovereign ratings and borrowing costs, implying that failure to adapt or mitigate can threaten fiscal stability (Zenios, 2022; Klusak et al., 2023). Similarly, natural disasters and rising climate volatility have been shown to raise sovereign spreads, especially in vulnerable emerging markets (Mallucci, 2022). These developments suggest that assessing fiscal sustainability requires going beyond traditional debt and deficit indicators to incorporate contingent risks and market based measures of sovereign risk.

Against this backdrop, a cross country perspective is essential to understand how different fiscal frameworks, economic structures, and risk exposures shape the relationship between sovereign risk and fiscal sustainability. While existing studies often focus on specific regions or episodes, there remains limited evidence that jointly examines standard fiscal sustainability metrics and market based sovereign risk indicators across a broad set of advanced and emerging economies, particularly in the post COVID and climate constrained environment. This study addresses that gap by conducting a cross country analysis that links fiscal reaction and debt

dynamics to sovereign risk pricing, providing comparative insights into which fiscal configurations and institutional settings are most conducive to sustainable public finances and resilient market access.

## **2. Literature Review**

Literature on sovereign risk and fiscal sustainability since 2019 shows that markets have become increasingly sensitive to both traditional fiscal fundamentals and new sources of risk. Blanchard (2019) revisits the costs of public debt in a low interest rate environment and argues that, although low safe rates can ease the intertemporal burden of debt, high and rising debt ratios still leave countries exposed to sudden shifts in risk premia and rollover risk when investor confidence deteriorates. Pandemic era evidence confirms this vulnerability: Andrieş et al. (2021) document that COVID-19 outbreaks and containment measures significantly increased sovereign bond risk in Europe, while Pan et al. (2021) show that sovereign CDS spreads widened in response to infection rates and macrofinancial fragilities across a broad sample of countries. For emerging markets, Daehler et al. (2021) find that sovereign CDS spreads during COVID-19 were driven by both global risk aversion and country specific fundamentals such as fiscal space and oil revenue dependence, indicating that investors closely monitor governments' capacity to absorb shocks. Sector specific exposures also matter: Chuffart and Hoarau (2019) show that oil price returns and volatility are key determinants of CDS premia for major oil exporters, reinforcing the link between commodity driven fiscal positions and sovereign credit risk.

A second strand of research focuses on fiscal sustainability tests based on fiscal reaction functions and long run relationships between revenues, expenditures, and debt. Di Iorio and Fachin (2022) revisit fiscal reaction functions for advanced economies and find that a stable long run relationship between primary balances and debt exists only in a subset of countries, with evidence of “fiscal fatigue” at very high debt levels in some cases, suggesting heterogeneous degrees of sustainability within the advanced economy group. For European Union members, Ramos-Herrera and Prats (2020) use a panel ARDL and dynamic threshold model to show that primary surpluses respond positively to rising debt only beyond specific thresholds, implying that fiscal behavior is nonlinear and that some countries adjust more strongly to preserve sustainability. In developing Asia, Bui (2020) applies a common correlated effects estimator to a panel of Asian economies and reports that, on average, governments do react to debt accumulation by improving primary balances, but cross country differences in responsiveness point to uneven fiscal discipline and varying vulnerability to sovereign stress.

Institutional arrangements and fiscal rules emerge as an important channel through which fiscal behavior translates into sovereign risk. Debt rules applied across a broad group of countries have been shown to improve fiscal sustainability, leading to smaller primary gaps and more favorable debt dynamics, suggesting that clear numerical limits can help discipline fiscal policy and strengthen perceptions of government solvency. Taken together with evidence that fiscal reaction functions vary with institutional quality, these results suggest that formal fiscal frameworks and

enforcement mechanisms are critical in shaping both the trajectory of public debt and the way investors price sovereign risk.

A rapidly expanding body of work incorporates climate related risks into sovereign risk and fiscal sustainability analysis. Beirne et al. (2021) show that climate vulnerability and resilience are systematically priced into sovereign bond yields, with more vulnerable countries facing higher borrowing costs even after controlling for conventional macrofiscal variables. Boehm (2022) focuses on emerging economies and demonstrates that higher temperature anomalies reduce sovereign bond performance and worsen measures of sovereign credit worthiness, particularly where institutional quality is weak, implying that physical climate shocks directly affect sovereign risk. Regional evidence for Southeast Asia by Beirne et al. (2021) further shows that climate change amplifies sovereign risk through channels such as growth losses, revenue shortfalls, and higher contingent liabilities related to disasters, thereby tightening constraints on fiscal sustainability over the medium term. These findings reinforce the view that assessing fiscal sustainability now requires integrating long horizon climate risks and disaster related liabilities into traditional debt and deficit metrics.

Overall, post 2019 studies converge on the idea that sovereign risk and fiscal sustainability are jointly determined by debt dynamics, the strength of fiscal responses to rising debt, the credibility of fiscal rules and institutions, and exposure to climate related shocks. Yet much of the empirical evidence remains fragmented: some contributions focus on market based sovereign risk indicators during specific episodes such as COVID-19, others on fiscal reaction functions in particular regions,

and still others on climate risks in selected country groups. There is still relatively limited cross country work that simultaneously links fiscal reaction behavior, debt trajectories, and market based measures of sovereign risk across a broad set of advanced and emerging economies in the post pandemic, climate constrained environment precisely the gap that a cross country analysis of sovereign risk and fiscal sustainability aims to fill.

### **3. Methods**

This study employs a systematic literature review (SLR) approach to synthesize existing empirical and theoretical evidence on the relationship between sovereign risk and fiscal sustainability. The review begins with the formulation of clear research questions focused on how debt dynamics, fiscal frameworks, and climate related factors are reflected in market based measures of sovereign risk. Relevant studies are identified through structured searches in major academic databases such as Scopus, Web of Science, and ScienceDirect, using combinations of keywords including “sovereign risk,” “fiscal sustainability,” “sovereign spreads,” “credit default swaps,” “fiscal reaction function,” “fiscal rules,” and “climate risk.”

The search is complemented by backward and forward citation tracking to capture additional peer reviewed journal articles. Inclusion criteria are defined to retain only empirical and conceptual works that (i) explicitly analyze sovereign risk or market based indicators such as bond yields and CDS spreads, (ii) examine fiscal sustainability, fiscal reaction behavior, or institutional and climate related determinants, and (iii) are published in peer reviewed journals and written in English.

The screening process follows a PRISMA style protocol, involving title and abstract review followed by full text assessment to ensure relevance and methodological rigor. For each selected study, data are systematically extracted on research design, country or regional coverage, variables and indicators used, methodological techniques, and key findings. The synthesis combines descriptive mapping of the literature with thematic analysis, organizing the evidence into core dimensions debt and fiscal reactions, institutional and rule based frameworks, and climate related risks to derive integrated insights and identify gaps for future cross country analyses of sovereign risk and fiscal sustainability.

## **4. Results and Discussion**

The systematic review reveals a consistent pattern that high and rising public debt is closely linked to heightened sovereign risk, especially in periods of macroeconomic stress. Evidence on the predictive power of public debt for fiscal crises supports the view that “debt is not free,” even in low interest rate environments, as fiscal space can erode rapidly when investors reassess sovereign risk (Blanchard, 2019; Moreno Badia et al., 2022). Market based indicators such as bond yields and credit default swap (CDS) spreads respond strongly to changes in fiscal fundamentals and policy credibility, indicating that sovereign credit risk is increasingly and continuously priced by financial markets (Augustin et al., 2022; Zheng, 2023). During the COVID-19 period, sovereign spreads widened in response to infection rates, containment measures, and macrofinancial fragilities, with both advanced and emerging markets experiencing sharp repricing of risk (Andrieş et al.,



2021; Daehler et al., 2021; Pan et al., 2021). In commodity dependent economies, oil price volatility further amplified sovereign CDS premia, underscoring the interaction between sector specific fiscal exposures and sovereign risk (Chuffart & Hoarau, 2019).

Findings on fiscal sustainability highlight substantial cross country heterogeneity in governments' responses to rising debt. Studies using fiscal reaction functions and cointegration tests show that, in some advanced economies, primary balances adjust positively to higher debt, consistent with sustainable fiscal behavior, whereas in other countries the adjustment is weak, especially in crisis prone periphery regions (Magazzino et al., 2019; Polat & Polat, 2021). For European Union members, nonlinear specifications indicate that fiscal surpluses respond more strongly only once debt surpasses certain thresholds, suggesting that policymakers may delay adjustment until solvency concerns become more acute (RamosHerrera & Prats, 2020). In developing Asia and other emerging regions, governments generally react to debt accumulation by improving primary balances, but the magnitude and consistency of this response vary widely, reflecting uneven fiscal discipline and differing capacities to absorb external shocks (MackiewiczŁyziak & Łyziak, 2019; Bui, 2020; Sakuragawa, 2020). These results imply that fiscal sustainability cannot be inferred from debt levels alone; it also depends on the strength and stability of the fiscal feedback mechanism.

The review further shows that institutional arrangements and fiscal rules play a pivotal role in translating fiscal behavior into sovereign risk perceptions. Evidence that debt rules and formal fiscal frameworks are associated with smaller primary gaps

and more favorable debt dynamics suggests that clear numerical limits and credible enforcement mechanisms help discipline fiscal policy and strengthen perceptions of government solvency. When combined with the heterogeneity found in fiscal reaction functions across institutional environments, these findings underline that the credibility and quality of fiscal institutions are critical in shaping both the trajectory of public debt and the way investors price sovereign risk. Countries with stronger rules and more transparent frameworks appear better able to maintain market confidence at given levels of debt, compared with those where fiscal policy is more discretionary and institutions weaker.

A major contribution of the recent literature is the integration of climate related risks into the analysis of sovereign risk and fiscal sustainability. Studies document that climate vulnerability and resilience are systematically priced into sovereign bond yields, with more vulnerable countries facing higher borrowing costs even after controlling for conventional macrofiscal indicators (Beirne et al., 2021; Zenios, 2022; Klusak et al., 2023). Physical climate shocks, such as higher temperature anomalies and more frequent natural disasters, are shown to weaken sovereign bond performance and worsen measures of creditworthiness, particularly in emerging markets with limited institutional capacity (Boehm, 2022; Mallucci, 2022). Regional evidence from Southeast Asia further indicates that climate change magnifies sovereign risk through channels including growth losses, revenue shortfalls, and rising contingent liabilities related to disasters, thereby tightening constraints on fiscal sustainability over the medium term. These results collectively support the argument that meaningful assessments of fiscal sustainability must move

beyond traditional debt and deficit metrics to incorporate long horizon climate and disaster related risks.

Overall, the evidence converges on the conclusion that sovereign risk and fiscal sustainability are jointly determined by debt dynamics, the responsiveness of fiscal policy to rising debt, the credibility of institutional and rule based fiscal frameworks, and exposure to climate related shocks. However, the literature remains fragmented along thematic and regional lines: some studies focus on market based sovereign risk indicators during specific episodes such as the COVID-19 crisis, others on fiscal reaction functions in particular country groups, and others on climate risks in selected regions. There is still relatively limited cross country work that simultaneously links fiscal reaction behavior, debt trajectories, institutional characteristics, and market based measures of sovereign risk across a broad set of advanced and emerging economies in a post pandemic, climate constrained environment. This gap highlights the need for integrated cross country analyses that can identify which combinations of fiscal configurations, institutional settings, and climate resilience strategies are most conducive to sustainable public finances and resilient market access.

## **5. Conclusion**

This study concludes that sovereign risk and fiscal sustainability are deeply interconnected and cannot be evaluated through debt and deficit indicators alone. The evidence shows that high and rising public debt remains a key driver of fiscal crises and sovereign spread dynamics, particularly when markets reassess

governments' capacity and willingness to adjust. At the same time, the strength of fiscal reaction functions, the timing and nonlinearity of fiscal adjustments, and the heterogeneity across advanced, emerging, and crisis prone economies demonstrate that sustainability hinges on how governments respond to rising debt rather than on debt levels per se. Institutional quality and credible fiscal rules emerge as critical amplifiers of market confidence, helping to translate disciplined fiscal behavior into lower perceived sovereign risk and more favorable debt dynamics.

The review also highlights that new sources of sovereign risk, especially climate related shocks and natural disasters, are increasingly priced into sovereign borrowing costs and creditworthiness, tightening fiscal constraints over the medium to long term. Climate vulnerability, weak resilience, and disaster related contingent liabilities raise sovereign spreads even after controlling for traditional macrofiscal fundamentals, implying that fiscally fragile and institutionally weak countries are particularly exposed. Overall, the fragmented nature of existing evidence across themes, regions, and risk dimensions underscores the need for integrated cross country analyses that jointly consider debt dynamics, fiscal reactions, institutional frameworks, and climate risks. Such studies are essential to identify which combinations of fiscal configurations, governance arrangements, and adaptation strategies are most conducive to sustainable public finances and resilient market access in an increasingly shock prone global environment.

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