Jun, 2025
GRINS DISCUSSION PAPER SERIES DP N° 09/2025 ISSN 3035-5567

GRINS

ESG Factors and Sovereign Debt. Examining Political Risk, Population Ageing, and Climate Change in Italy's Fiscal Strategy

DP N° 09/2025

Authors:
Samantha Ajovalasit, Andrea Consiglio

Jun, 2025
GRINS DISCUSSION PAPER SERIES DP N° 09/2025 **ISSN 3035-5567**

ESG Factors and Sovereign Debt. Examining Political Risk, Population Ageing, and Climate Change in Italy's Fiscal Strategy

Samantha Ajovalasit, Andrea Consiglio

ACKNOWLEDGEMENTS

This study was funded by the European Union - NextGenerationEU, in the framework of the GRINS - Growing Resilient, INclusive and Sustainable project (GRINS PE00000018). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union, nor can the European Union be held responsible for them.

CITE THIS WORK

Title: ESG Factors and Sovereign Debt. Examining Political Risk, Population Ageing, and Climate Change in Italy's Fiscal Strategy. Publication Date: 2025.

In an increasingly interconnected world, the influence of Environmental, Social, and Governance (ESG) factors on public debt sustainability has become a focal point of economic policy and research. The critical ESG components—political risk, demographic shifts from an ageing population, and climate change—create unique and compounded challenges to fiscal stability. Political instability can raise borrowing costs and slow economic growth because unpredictable governments negatively affect market stability (Bekaert et al., 2014). Demographic trends, particularly the growing number of older people in developed countries, put much pressure on public finances. This leads to higher healthcare and pension costs (European Commission, 2023). Meanwhile, the impacts of climate change, such as extreme weather events and rising sea levels, pose a risk of undermining economic output and budget constraints, calling for large-scale adaptation investments (Bolton et al., 2022).

The three policy briefs discussed in this article offer a clear overview of how Italy, representative of many advanced economies, addresses these challenges. The first brief, “Mitigating the Fiscal Risks of Political Instability: Policy Insights for Sovereign Debt Sustainability”, illustrates how political reforms can improve debt sustainability by stabilizing governance structures and, in turn, reducing the fiscal risks associated with political volatility. The second brief, “Securing Italy’s Economic Stability in the Era of Population Ageing”, focuses on Italy's demographic challenges. It emphasizes the fiscal pressures that arise from an ageing population and outlines strategies to mitigate these effects through policy reforms to increase productivity and manage healthcare costs. Finally, the third brief, “Sovereigns on Thinning Ice. Navigating Debt Sustainability Under Climate Change”, discusses integrating climate risk into debt sustainability analyses. It emphasizes the need for proactive measures to address the fiscal impacts of climate change through adaptation and international cooperation.

These briefs emphasize the need for a complete and proactive method to handle political, demographic, and environmental risks. Italy's experience is a useful example for other countries facing similar ESG challenges. It shows the benefits of including detailed risk assessments in public debt management to achieve long-term financial and economic stability.

GRINS FOUNDATION

Discussion Paper Series

ESG Factors and Sovereign Debt.

Examining Political Risk, Population Ageing, and Climate Change in Italy's Fiscal Strategy

Discussion paper n. 09/2025

Samantha Ajovalasit and Andrea Consiglio. Department of Economics, Business and Statistics, University of Palermo.

ISSN 3035-5567

ESG Factors and Sovereign Debt

Examining Political Risk, Population Ageing, and Climate Change in Italy's Fiscal Strategy

Samantha Ajovalasit and Andrea Consiglio. Department of Economics, Business and Statistics, University of Palermo.

JEL Codes: C61, C63, H63, J11, Q54.

Keywords: Debt management, debt sustainability analysis, political risk, demographic ageing, climate change, sovereign risk management, simulation and optimization.

This study was funded by the European Union - NextGenerationEU, in the framework of the GRINS - Growing Resilient, INclusive and Sustainable project (GRINS PE00000018 - CUP D13C22002160001). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union, nor can the European Union be held responsible for them

Introduction

In an increasingly interconnected world, the influence of Environmental, Social, and Governance (ESG) factors on public debt sustainability has become a focal point of economic policy and research. The critical ESG components—political risk, demographic shifts from an ageing population, and climate change—create unique and compounded challenges to fiscal stability. Political instability can raise borrowing costs and slow economic growth because unpredictable governments negatively affect market stability (Bekaert *et al.*, 2014). Demographic trends, particularly the growing number of older people in developed countries, put much pressure on public finances. This leads to higher healthcare and pension costs (European Commission, 2023). Meanwhile, the impacts of climate change, such as extreme weather events and rising sea levels, pose a risk of undermining economic output and budget constraints, calling for large-scale adaptation investments (Bolton *et al.*, 2022).

The three policy briefs discussed in this article offer a clear overview of how Italy, representative of many advanced economies, addresses these challenges. The first brief, "*Mitigating the Fiscal Risks of Political Instability: Policy Insights for Sovereign Debt Sustainability*", illustrates how political reforms can improve debt sustainability by stabilizing governance structures and, in turn, reducing the fiscal risks associated with political volatility. The second brief, "*Securing Italy's Economic Stability in the Era of Population Ageing*", focuses on Italy's demographic challenges. It emphasizes the fiscal pressures that arise from an ageing population and outlines strategies to mitigate these effects through policy reforms to increase productivity and manage healthcare costs. Finally, the third brief, *"Sovereigns on Thinning Ice. Navigating Debt Sustainability Under Climate Change"*, discusses integrating climate risk into debt sustainability analyses. It emphasizes the need for proactive measures to address the fiscal impacts of climate change through adaptation and international cooperation.

These briefs emphasize the need for a complete and proactive method to handle political, demographic, and environmental risks. Italy's experience is a useful example for other countries facing similar ESG challenges. It shows the benefits of including detailed risk assessments in public debt management to achieve long-term financial and economic stability.

The Role of Political Stability in Public Debt Management

Political risk is a critical factor influencing sovereign debt sustainability, particularly in high-debt economies where fiscal margins are constrained. The interplay between governance quality, market confidence, and borrowing costs has been widely studied, with empirical evidence showing that political instability leads to higher sovereign risk premiums, reduced economic growth, and deteriorating fiscal conditions (Bekaert *et al.*, 2014; Eichler, 2014). Political risk encompasses various dimensions, including government instability, policy uncertainty, social unrest, and electoral volatility, affecting a nation's ability to manage and sustain its debt.

The impact of political risk on sovereign debt is particularly pronounced in economies with already high debt-to-GDP ratios, as investors demand higher yields to compensate for uncertainty (Ajovalasit *et al.*, 2024). This creates a feedback loop: heightened political instability increases borrowing costs, exacerbating fiscal stress and further destabilizing economic conditions. Conversely, strong governance frameworks and policy consistency can help mitigate these risks by fostering investor confidence, stabilizing debt markets, and reducing refinancing pressures.

Empirical Evidence: Case Studies from Italy and France

Ajovalasit et al. (2024) integrate International Country Risk Guide (ICRG) ratings into sovereign debt models to quantify how governance quality influences fiscal outcomes. Two case studies—Italy's governance reforms from 2014 to 2019 and France's 2024 snap elections—illustrate the stark contrast between stable and volatile political environments.

I. Italy (2014–2019): Political Reforms and Debt Stability

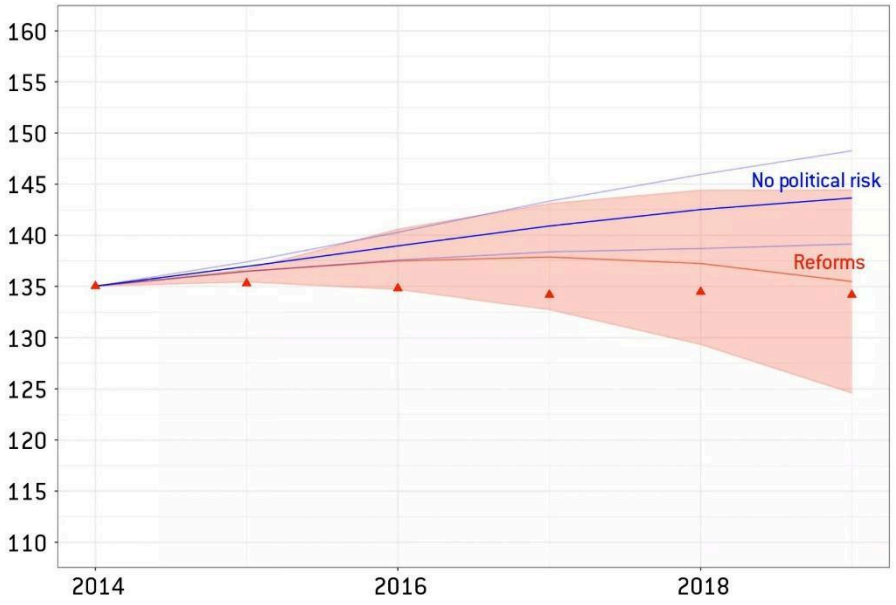
   Italy implemented structural reforms to improve governance and economic stability during this period. Political ratings improved, and this reduced perceived political risk, which led to stabilising debt trajectories. As shown in Figure 1, Panel (a), the coral fan charts with political DSA projections indicate a much narrower debt-to-GDP range compared to the counterfactual scenario, where political

ratings remained static. The reforms allowed Italy to achieve lower realised debt ratios than initially anticipated, highlighting the fiscal benefits of governance improvements.

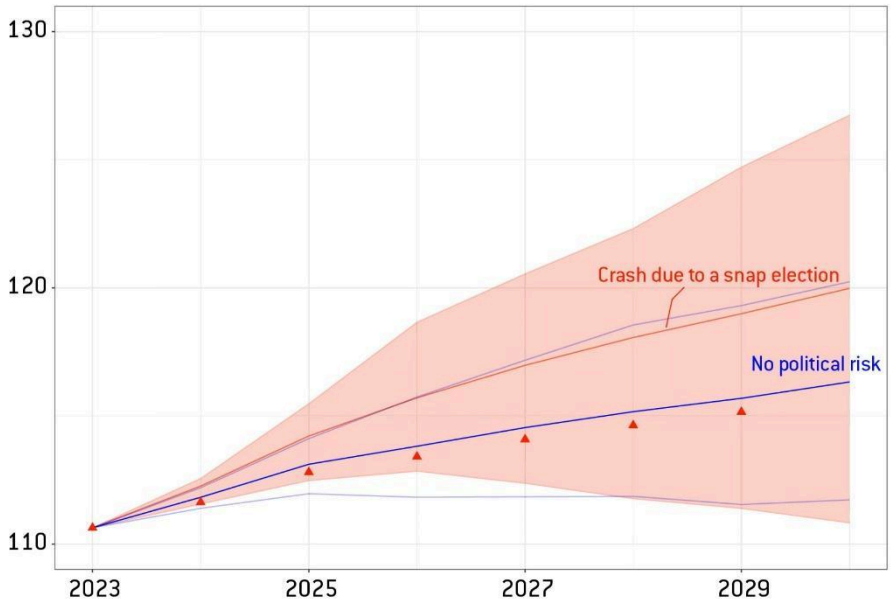
II. France (2024): Snap Elections and Fiscal Volatility

In contrast, the snap elections in France during the summer of 2024 created a sudden drop in political ratings, increasing perceived risk among investors. Figure 1, Panel (b), illustrates how this shock significantly widened the debt-to-GDP trajectory compared to a counterfactual scenario in which France maintained political stability. The coral fan charts display a higher and more volatile debt range, emphasising the destabilising impact of political shocks on fiscal outcomes. Projections from the 2024 World Economic Outlook reinforce this assessment, showing raised debt ratios due to heightened political uncertainty.

Informed by the Italian and French experiences, policymakers must act firmly to manage political risk and its fiscal implications. Even small improvements in governance quality can yield significant budgetary benefits. Policymakers can stabilise debt trajectories and foster economic resilience by prioritising political stability and incorporating political risk into debt management strategies. This is particularly urgent in a global environment characterised by rising interest rates and increasing geopolitical tensions, exacerbating high-debt economies' vulnerabilities.



(a) *Italian reforms (2014–2019)*



(b) *French snap elections (2024)*

Figure 1. Debt-to-GDP trajectories with and without political DSA for (a) Italian reforms (2014–2019) and (b) French snap elections (2024). Coral fan charts show projections with political risk, while blue lines represent counterfactual scenarios without changes in political ratings. Triangles indicate realised debt ratios for Italy and France's 2024 World Economic Outlook projections (Source: Ajovalasit et al. 2024).

Integrating Political Risk into Debt Sustainability Frameworks

Traditional debt sustainability models often exclude political risk from fiscal projections, leading to an incomplete assessment of sovereign creditworthiness. However, recent advancements in risk-based DSA methodologies incorporate governance indicators into debt forecasting models, allowing for more accurate fiscal planning. Ajovalasit et al. (2024) suggest that a 10-point deterioration in ICRG ratings correlates with an average increase of 106 basis points in sovereign spreads and a two-p.p. reduction in GDP growth, demonstrating the significant economic consequences of political instability.

To address these challenges, policymakers should incorporate governance risk metrics into their sovereign debt management frameworks. The following strategies can help mitigate the fiscal risks associated with political instability:

I. Integrate Political Risk into Debt Sustainability Frameworks:

- Governments and international institutions should adopt debt sustainability analysis (DSA) frameworks that include political risk metrics, such as those proposed by Ajovalasit et al. (2024).
- Use reliable data sources like the International Country Risk Guide to track governance-related vulnerabilities that affect debt dynamics.

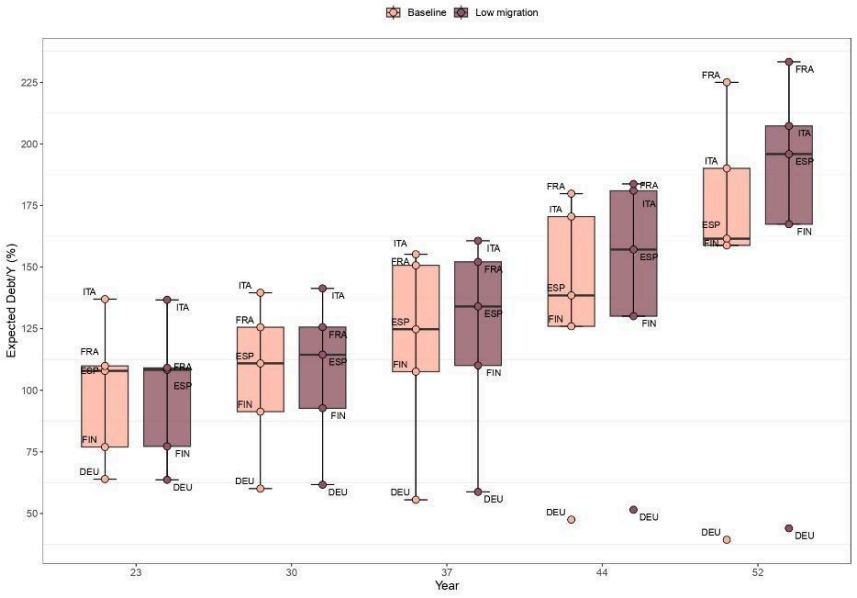
II. Implement Structural Reforms to Mitigate Political Risk:

- Focus on reducing corruption, improving bureaucratic efficiency, and enhancing the rule of law to improve political stability and lower borrowing costs.
- Develop mechanisms to ensure consistency in policy implementation across political cycles to build investor confidence.

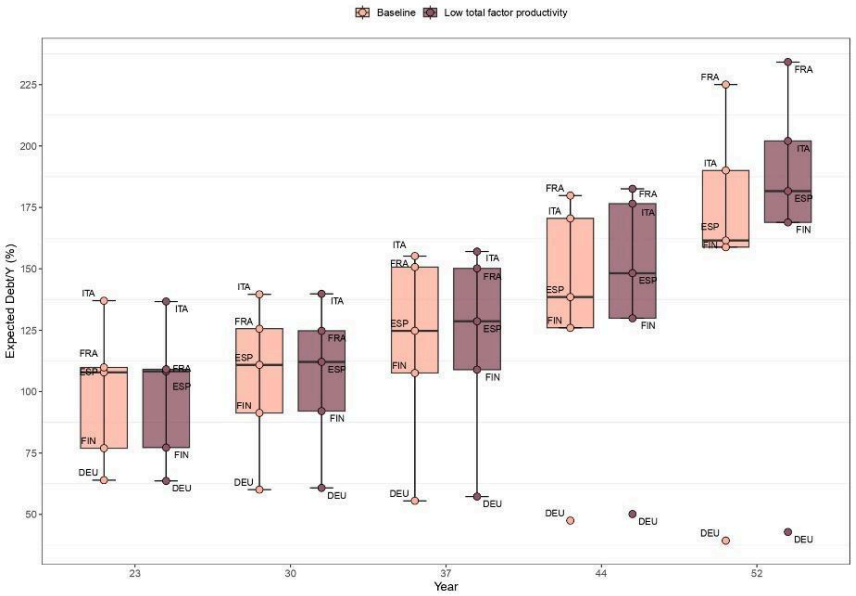
Impact of Ageing Populations on Debt Dynamics

As outlined in Ajovalasit, Consiglio and Provenzano (2024), ageing populations exert substantial pressure on public finances through increased expenditures on pensions and healthcare. This demographic trend is exacerbated in countries like Italy, where a rapidly ageing population, low fertility rates, and slow economic growth pose a severe challenge to fiscal stability.

The European Commission's 2024 Ageing Report (European Commission, 2023) predicts a decline in the EU's population from 449 million in 2022 to 432 million by 2070, with public spending on ageing-related costs projected to rise significantly. In Italy, these demographic shifts are expected to push debt-to-GDP ratios potentially above 150% by mid-century unless significant policy interventions are made. We use a stochastic modelling approach to assess these risks, utilizing data from Italy and other EU countries such as Finland, France, Germany, and Spain. We also propose risk management strategies aimed at mitigating the impact of ageing on public debt.



(a) Low Migration



(b) Low TFP

Figure 2. Snapshots of the debt-to-GDP ratio over time under various demographic scenarios compared to the baseline. Each point represents the expected debt-to-GDP ratio at a given time, with box plots illustrating the range of impacts across countries in the panel.

Strategies for Managing Demographic Risks

The authors emphasize several policy options to address the fiscal implications of demographic ageing:

I. Mitigating the Impact of Low Migration: A low migration scenario significantly impacts debt sustainability, as reduced labour force growth directly affects economic output and fiscal revenues. In Figure 2, Panel (a), we show that in a low migration scenario, the debt-to-GDP ratio begins to increase visibly from 2037, reaching a worsening of 20 percentage points by 2052 compared to baseline projections (Ajovalasit, Consiglio and Provenzano, 2024).

Policies to enhance labour force growth through targeted immigration reforms can help compensate for the declining birth rates. Such measures include simplifying immigration procedures and improving integration programs.

II. Addressing Productivity Decline in Low TFP Scenarios: A low Total Factor Productivity (TFP) scenario exacerbates debt sustainability challenges by reducing GDP growth. In Figure 2, Panel (b), we show that the debt-to-GDP ratio

worsens under low productivity conditions from 2045, with a cumulative negative impact of 15 percentage points by 2052 (Ajovalasit, Consiglio and Provenzano, 2024).

A policy action Investing in R&D, digital transformation, and education to boost productivity is critical. These investments support economic growth and can offset the negative impacts of a shrinking workforce.

III. Fighting Low Fertility Rates: A low fertility scenario has a smaller but still noticeable effect on the debt-to-GDP ratio. While its impact is less severe than low migration or TFP scenarios, it still contributes to fiscal stress by shrinking the future labour force. We find that this scenario increases the debt-to-GDP ratio over the long term, even though not dramatically (4 percentage points. Figure not shown).

Implementing family support policies, such as parental leave incentives and childcare subsidies, to encourage higher birth rates, thereby stabilizing the labour force in the long term.

Sovereigns on Thinning Ice: Navigating Debt Sustainability Under Climate Change

Challenges Posed by Climate Change to Sovereign Debt

Climate change poses severe risks to public debt sustainability, especially for countries prone to extreme weather events and rising adaptation costs. The report "Sovereigns on Thinning Ice: Debt Sustainability, Climate Impacts, and Adaptation" (Calcaterra *et al.*, 2025) details how these environmental risks, if not proactively managed, can significantly elevate debt-to-GDP ratios, pushing them to unsustainable levels. Countries with high exposure to climatic disruptions face increased fiscal vulnerabilities that can destabilize their economic frameworks over both the short and long term.

Italy's geographic and economic characteristics make it particularly susceptible to the impacts of climate change, which pose a significant risk to its debt sustainability. As highlighted in the policy brief, Italy, being a Mediterranean country, faces heightened risks from increased frequency and intensity of droughts, heat waves, and flooding. These climatic events have direct adverse effects on agriculture, tourism, and overall economic productivity, sectors critical to the Italian economy.

The paper also introduces a novel integration of Debt Sustainability Analysis (DSA) with Integrated Assessment Models (IAMs), utilizing the RICE50+ model. This model blends regional socio-economic pathways (SSPs) and climate scenarios (Representative Concentration Pathways, RCPs) to predict economic and fiscal effects. Such integration allows for a nuanced understanding of how different climate scenarios could affect national economies. For instance, under moderate scenarios like SSP2-RCP4.5, countries

might need to adjust their fiscal policies minimally, while severe scenarios like SSP3-RCP7.0 could necessitate major adjustments, particularly in vulnerable nations like Italy where up to 1% of GDP annually might be required for debt stabilization (see Table 1).

Scenario	Advanced Economies (Italy, EU)	Emerging Markets (Brazil, India)	Highly Vulnerable Economies
SSP2-RCP4.5 (Moderate Climate Impact)	0.2% of GDP annually	0.5% of GDP annually	1.0% of GDP annually
SSP3-RCP7.0 (Severe Climate Impact)	1% of GDP annually	1.5% of GDP annually	2.6% of GDP annually

Table 1. Fiscal adjustments under different climate scenarios.

Empirical Evidence and Policy Implications

The study by Calcaterra *et al.*, (2025) provides crucial insights into the fiscal implications of climate change. Due to its extensive coastline and dependence on agriculture and tourism, Italy faces severe immediate effects from climate events. The study highlights that such events can diminish GDP growth by an average of 0.5% annually. This reduction can escalate debt-to-GDP ratios significantly—by up to 10 percentage points over two decades. This is a substantial increase, given Italy's already high public debt levels, and underscores the urgent need for effective fiscal management and disaster preparedness to mitigate these short-term impacts.

Over the long term, the absence of adequate adaptation measures could lead to a doubling of fiscal pressures by 2050. For Italy, this scenario poses a significant risk, potentially exacerbating the challenges of an ageing population and stagnant economic growth (see Section above). The cumulative effect of these pressures could strain Italy's fiscal resources, pushing public debt to even more unsustainable levels and limiting the country's economic recovery and growth potential.

The empirical evidence aligns with broader academic research linking climate risks with macroeconomic instability and increased borrowing costs, which are particularly pertinent for Italy. Studies by Batten (2018) and Bolton *et al.*, (2022) suggest that

heightened climate risks lead to macroeconomic instability and erode investor confidence, resulting in higher borrowing costs. This relationship is critical for Italy, where fiscal stability is already under pressure from various economic and demographic factors.

Strategic Adaptation and Financing Options

Adaptation investments can help mitigate the negative fiscal impacts of climate change, especially under severe scenarios. However, the effectiveness of these measures depends on their financing sources and the extent of climate damage.

The study analyses three financing strategies:

1. full private-sector funding, which yields the best debt outcomes but is mainly unrealistic, as currently, private-sector contributions account for less than 2% of global adaptation investments (Tall et al., 2021);
2. a mixed approach with governments only funding reactive adaptation (like disaster relief);
3. full government financing, which can worsen debt sustainability due to increased sovereign borrowing.

Figure 3 illustrates the impact of climate adaptation on debt ratios by the end of the century under scenarios of high climate damage. The results show a U-shaped relationship across various policies: fully private adaptation consistently reduces debt burdens, although its effects may be limited in some countries. Public spending on reactive adaptation can enhance debt sustainability, but fully government-funded adaptation is expensive and may exceed its benefits.

Despite some reductions in debt, no adaptation strategy completely mitigates the fiscal risks associated with climate change, as evidenced by the upward arrows indicating unsustainable debt trajectories.

The mixed strategy—where the public sector manages reactive measures while the private sector funds proactive ones—appears to be the most viable option. This approach has the potential to prevent further deterioration of debt levels. Policymakers should aim to balance adaptation spending with long-term debt sustainability to prevent imposing excessive financial burdens.

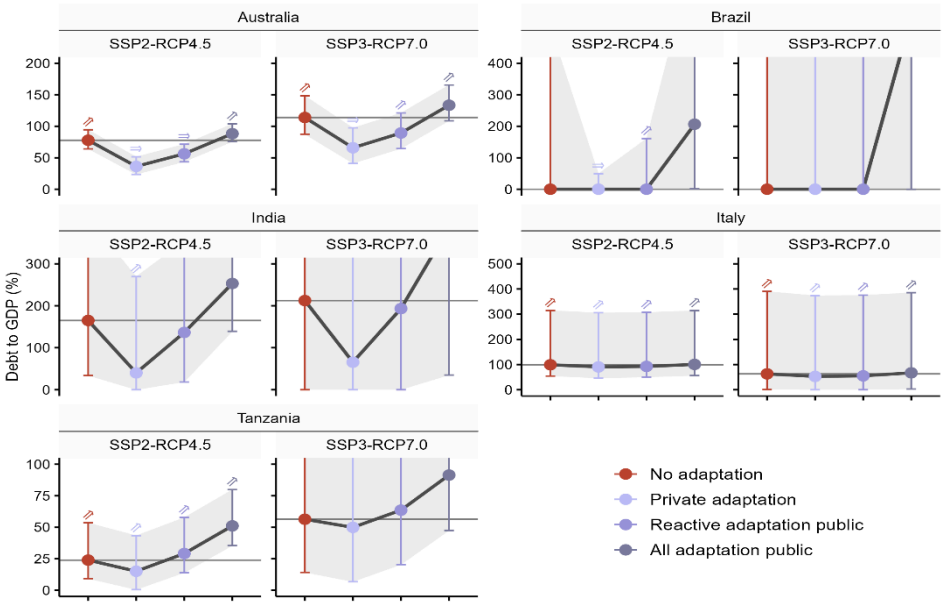


Figure 3. Effect of climate change adaptation on end-of-century debt ratios under high climate damages. The figure illustrates median values and the inter-quartile range for different adaptation policies. The double arrow above each whisker indicates debt trajectory stability: horizontal arrows signify stable debt dynamics while upward-pointing arrows indicate unsustainable debt increases.

Strategic Responses to Climate-Induced Fiscal Risks

Italy's vulnerabilities to climate change necessitate specific, targeted policy actions to integrate climate risks effectively into its national debt management frameworks and broader fiscal policies.

I. Developing Comprehensive Climate Risk Management Frameworks:

- Italy-specific DSA Models: Develop Debt Sustainability Analysis models that are tailored to Italy's specific climate risks and economic context. These models should include projections for various climate scenarios, assessing impacts on critical sectors such as agriculture, tourism, and manufacturing.

- Scenario Analysis for Fiscal Planning: Implement scenario planning to explore different climate futures and their potential impacts on Italy's economy. This approach should guide the development of flexible fiscal policies that can adapt to varying climate conditions.

II. Enhancing Funding for Climate Adaptation:

- Public-Private Partnerships: Utilize public-private partnerships to improve infrastructure resilience, especially in high-risk areas such as coastal regions and agriculture. Promote private investments in green infrastructure by offering incentives like tax breaks or matching public funding.
- Utilization of EU Funds: Look for funding from European Union programs, such as the European Structural and Investment Funds, for climate adaptation projects. These funds can help pay for large infrastructure upgrades and new sustainable technologies.

III. Strengthening International and Regional Cooperation:

- European Union Collaboration: Work together more effectively within the EU to create common strategies for assessing and managing climate risks. Italy should push for joint funding options and agreements to share technology in order to address the challenges of climate change.
- Global Climate Agreements: Take an active role in international climate agreements by supporting stronger funding for climate-related projects and helping countries hit hard by climate change with their debt. Italy can lead efforts to promote climate resilience as a key part of global financial stability.

Conclusion

This paper looks at how environmental, social, and governance (ESG) factors—like political risk, an ageing population, and climate change—affect Italy's ability to manage its debt. Each policy brief highlights the importance of taking a holistic and proactive approach to deal with these risks to ensure enduring financial and economic stability. Italy's experience serves as a valuable example of why it's important to consider various risks when managing public debt. The country's efforts in political reform, managing its ageing population, and adapting to climate change show the need for combined policy strategies that address the impacts of political stability, demographic changes, and environmental issues. These approaches are crucial for keeping the economy stable and ensuring that a country can withstand global challenges.

Acknowledgement

This study was funded by the European Union - NextGenerationEU, Mission 4, Component 2, in the framework of the GRINS -Growing Resilient, INclusive and Sustainable project

(GRINS PE00000018 – CUP B73C22001260006). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union, nor can the European Union be held responsible for them.

References

Ajovalasit, S. *et al.* (2024) 'Are Bad Governments a Threat to Sovereign Defaults? The Effects of Political Risk on Debt Sustainability'. SSRN. Available at: https://doi.org/10.2139/ssrn.4929114.

Ajovalasit, S., Consiglio, A. and Provenzano, D. (2024) 'Debt Sustainability in the Context of Population Ageing: A Risk Management Approach', *Risks*, 12(12), p. 188. Available at: https://doi.org/10.3390/risks12120188.

Batten, S. (2018) *Climate Change and the Macro-Economy: A Critical Review*. Staff Working Paper 706. London: Bank of England. Available at: https://www.ssrn.com/abstract=3104554 (Accessed: 29 January 2025).

Bekaert, G. *et al.* (2014) 'Political risk spreads', *Journal of International Business Studies*, 45(4), pp. 471–493. Available at: https://doi.org/10.1057/jibs.2014.4.

Bolton, P. *et al.* (2022) *Climate and Debt*. Geneva: ICMB International Center for Monetary and Banking Studies (Geneva reports on the world economy, 25).

Calcaterra, M. *et al.* (2025) 'Sovereigns on Thinning Ice: Debt Sustainability, Climate Impacts, and Adaptation'. SSRN. Available at: https://doi.org/10.2139/ssrn.5074531.

Consiglio, A. (no date a) *Mitigating the Fiscal Risks of Political Instability: Policy Insights for Sovereign Debt Sustainability*. Available at: https://grins.it/output/mitigating-fiscal-risks-political-instability-policy-insights-sovereign-debt-sustainability (Accessed: 18 February 2025).

Consiglio, A. (no date b) *Securing Italy's Economic Stability in the Era of Population Ageing*. Available at: https://grins.it/output/securing-italys-economic-stability-era-population-ageing (Accessed: 18 February 2025).

Consiglio, A. (no date c) *Sovereigns on Thinning Ice. Navigating Debt Sustainability Under Climate Change*. Available at: https://grins.it/output/sovereigns-thinning-ice-navigating-debt-sustainability-under-climate-change (Accessed: 18 February 2025).

Eichler, S. (2014) 'The political determinants of sovereign bond yield spreads', *Journal of International Money and Finance*, 46, pp. 82–103. Available at: https://doi.org/10.1016/j.jimonfin.2014.04.003.

European Commission. Directorate General for Economic and Financial Affairs. (2023) *The 2024 ageing report: underlying assumptions and projection methodologies.* LU: Publications Office. Available at: https://data.europa.eu/doi/10.2765/960576 (Accessed: 28 October 2024).

Tall, A. *et al.* (2021) 'Enabling Private Investment in Climate Adaptation and Resilience', *World Bank Publications - Reports* [Preprint]. Available at: https://hdl.handle.net/10986/35203.