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Review

The implementation of sustainability in the sovereign credit assessment in MENA region: A review study

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Abstract: The Middle East and North Africa (MENA) region faces unique challenges and opportunities in integrating sustainability into sovereign credit assessments. This research study examines environmental, social, and governance (ESG) factors embedded in the lending policies of jurisdictional institutions in MENA. By analyzing existing literature and case studies, we identify key drivers and barriers to ESG integration in sovereign lending. Our findings suggest a growing recognition of sustainability's importance in financial stability and credit, driven by global climate guarantees and local socio-economic development. However, challenges such as data availability, regulatory frameworks, and market acceptance persist. This paper provides an overview of current practices, highlights best practices, and offers recommendations to enhance ESG integration in sovereign debt reviews in the MENA region. The study concludes that a robust ESG framework is necessary to accurately reflect the long-term risks and opportunities associated with sovereign debt, ultimately contributing to sustainable economic growth regionally.

Keywords: sovereign credit assessments; MENA; ESG factors; sustainability; financial stability

1. Introduction

A sovereign credit rating evaluates a nation's creditworthiness when it borrows money on foreign markets. It plays a crucial role in forecasting and determining a nation's access to global financial markets. The credit rating serves as a leading indicator of the creditworthiness of both the nation and its businesses, significantly impacting the financial sector and the overall economy. Notably, a nation's sovereign credit rating directly affects its total borrowing costs (Tuomi, 2023). Globally, three major rating agencies—Fitch Group, Moody's, and Standard & Poor's (S&P)—dominate the credit rating market.

Environmental responsibility is a key focus in the financial sector, and businesses prioritize it. However, governments should also consider Environmental, Social, and Governance (ESG) aspects. Although ESG factors involve non-financial data, they complement financial ratings by allowing investors to assess a nation's long-term stability, considering environmental, social, and political responsibility (ISS Governance, 2024). From a credit rating perspective, ESG variables significantly impact a government's credit profile, reflecting a nation's sustainability (GFOA, 2020). While ESG is now part of credit rating assessments, providers don't directly quantify its influence on credit ratings (Pineau et al., 2022).

The Middle East and North Africa (MENA) region, known for its geopolitical complexity and economic diversity, is currently aligning its sovereign credit assessment methods with sustainable development principles (Yalta and Yalta, 2018). ESG factors play a crucial role in credit ratings within this region due to its unique challenges. MENA economies vary significantly, from oil-dependent nations to those with emerging market structures. Consequently, a customized approach to credit assessments is essential, considering specific environmental, social, and governance issues relevant to each country.

The global financial landscape increasingly recognizes sustainability's importance. Integrating ESG factors into investment decisions has gained global attention. Simultaneously, the United Nations established the Sustainable Development Goals (SDGs) framework to guide sustainable efforts (Göll et al., 2019). These goals emphasize long-term stability and development through sustainable economic practices. In the MENA region, achieving these goals is critical given its strategic importance and diverse environmental and social challenges.

Despite progress, the MENA region encounters challenges in aligning SDG goals with ESG criteria for sovereign credit assessments. Factors like political instability, reliance on natural resources, and varying governance quality hinder seamless sustainability integration into credit evaluations. Understanding region-specific drivers and barriers is crucial for effective ESG integration.

The research gap centers on the underexplored integration of Tuomi into sovereign credit assessments, particularly within the diverse and geopolitically complex MENA region. While ESG considerations increasingly influence corporate credit ratings globally, their specific implications for sovereign creditworthiness remain insufficiently examined. This gap necessitates a deeper investigation into how ESG criteria can be effectively incorporated into sovereign credit evaluations, aiming to provide more nuanced insights into the economic resilience and sustainability of MENA countries on the international financial stage.

This review study investigates ESG integration in sovereign credit assessments in the MENA region. By analyzing literature, regulations, and case studies, we identify drivers and barriers to sustainability incorporation. We also propose recommendations to enhance ESG integration in sovereign credit ratings. These insights benefit policymakers, investors, and academics, fostering a nuanced understanding of sustainability in MENA credit assessments.

2. Literature review

The literature review focused on identifying scholarly articles, reports, and case studies related to the integration of environmental, social, and governance (ESG) factors in sovereign credit assessments within the Middle East and North Africa (MENA) region. Keywords including "ESG factors in sovereign credit", "MENA region", "sustainability in sovereign lending", and similar terms were used to search academic databases such as ScienceDirect, Google Scholar, and institutional repositories.

Selected literature included studies published in peer-reviewed journals, white papers from reputable financial institutions, and reports from international

organizations focusing on ESG integration in sovereign lending policies. The timeframe for inclusion was set from 2010 to 2024 to capture recent developments and contemporary perspectives.

3. Sustainability in sovereign credit assessment

This topic is highly relevant given current crises, including financial instability, political conflicts, and sustainable development concerns (Vitols and Jekabsone, 2023). Forecasters address solvency and liquidity issues by analyzing past and present public debt, economic, political, and military indicators, which reveal current instabilities. This analysis typically relies on accounting theory and agent-principal relationships in information economics (Vafin, 2020). However, relying solely on historical accounting data for analysis is inadequate because political factors and the implementation of public policies are unpredictable, potentially leading to future events that historical data alone cannot capture (Cifuentes-Faura and Simionescu, 2024; Zhuravka et al., 2024).

In the late 1980s, the concept and practices of social, economic, and environmental sustainability were introduced in the Brundtland Report (Kirkby et al., 2023). More recently, the United Nations has promoted sustainability reporting through the Principles for Responsible Investments, focusing on environmental, social, and governance (ESG) issues (Hajian and Kashani, 2021).

In sovereign risk analysis, sustainability primarily concerns a sovereign's ability to meet its debt service and other obligations, ensuring fairness across current and future generations (Larrinaga and Bebbington, 2021). A fiscally sustainable country maintains sound public finances, anticipates robust economic growth, and maintains a balanced external position (Drastichová, 2022; Lozano, 2024; Sakalasooriya, 2021).

3.1. Sovereign credit assessment

The ability of a government or sovereign entity, such as a nation-state, to borrow money by issuing bonds on financial markets is known as sovereign credit. The interest rates on sovereign bonds often reflect investor confidence in a nation's ability to repay debts. Stable economies, sound financial management, and the ability to meet long-term financial obligations are typically associated with strong sovereign credit ratings (Chari et al., 2024).

Researchers, scholars, and economists globally have approached the study and assessment of sovereign credit risk with various methods and models. Sovereign credit risk analysis typically includes factors such as credit spreads and ratings. For instance, the Euro debt crisis illustrates the intricate relationship between geopolitics and sovereign credit pricing (Bratis et al., 2018).

Following the COVID-19 pandemic, Sovereign Credit Default Swap (CDS) spreads surged, especially in developing countries with weak healthcare infrastructures, exacerbating challenges in highly impoverished nations (LONGSTAFF et al., 2011).

Hamida's study (2023) addresses mounting concerns about sovereign default risk across multiple countries, exploring the key determinants of this risk. It examines two main areas of literature: first, analyzing sovereign risk using CDS as a measure and

alternative rating, and second, scrutinizing specific country-level and global factors influencing sovereign risk.

A Sovereign Credit Rating (SCR) evaluates a nation's credit risk, indicating its ability to meet financial obligations (Overes and Van Der Wel, 2023). These ratings strongly influence the interest rates governments pay on borrowed funds, impacting public spending and deficits. Major credit rating agencies like Moody's, S&P, and Fitch commonly assign these ratings (Anand et al., 2023).

Sovereign credit ratings evaluate a government's ability and willingness to repay its debts, including principal and interest, on time (Tran et al., 2021). These ratings gauge the risk of default and help governments anticipate future default possibilities. However, they do not account for default risks from other issuers within the same country (Daniel et al., 2019).

There are distinctions between sovereign ratings for local and foreign currencies; ratings for foreign-currency-denominated debt are often lower due to sovereign transfer risk factors (Chen et al., 2016). Governments typically need foreign exchange reserves to service foreign-currency-denominated debt, whereas local-currency-denominated debt can often be repaid through taxes or monetary issuance (Lu et al., 2024).

Governments also have the ability to impose restrictions that affect private companies' ability to pay their non-resident creditors in foreign currencies. Rating agencies utilize both quantitative metrics—such as financial and economic indicators—and qualitative factors, including political and policy considerations, in their assessments (Slapnik and Lončarski, 2023).

Standard & Poor's (2023) employs a comprehensive approach to assess credit risk and establish a reliable independent credit profile and issuer credit rating. This assessment considers three main components: the business risk profile, the financial risk profile, and other factors influencing credit risk, as illustrated in **Figure 1**. Both financial and non-financial factors are taken into account in this evaluation (Gilchrist et al., 2022).

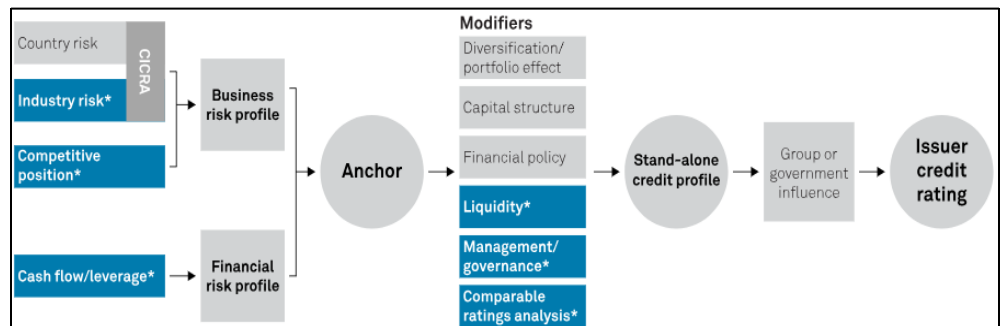

Figure 1. Credit rating assessment framework.

Standard & Poor's source.

The business risk profile evaluates a company's competitive position, strengths, weaknesses, and macroeconomic factors influencing industry and national risks (Akin, 2021). It uses both quantitative and qualitative data, such as historical revenue trends and profitability levels, to assess the company's risk-return profile. Factors like

industry risk, competitive position, and national risk are each assigned a rating on a scale of one to six, with one indicating the lowest risk (Vu et al., 2022).

Management bases financial decisions on the business risk profile, which influences the financial risk profile. This assessment includes fundamental financial metrics such as debt-to-EBITDA ratio (Earnings Before Interest, Taxes, Depreciation, and Amortization) and cash flow analysis (Guo et al., 2023). The financial risk profile, like the business risk profile, is rated on a scale of one to six, with one indicating the lowest leverage. The combined results of these profiles establish the foundation for further analysis (Mellios and Paget-Blanc, 2006).

Sovereign credit ratings compare nations' creditworthiness relative to each other. The highest rating, AAA or Aaa, signifies the most creditworthy, while D or Caa indicates the least. For instance, debt rated from AAA to BBB is considered "investment grade", while BB+ to D is seen as speculative or "high yield." Although rating agencies use different symbols, their systems are interconnected, allowing for conversion into numerical equivalents (Cevik and Jalles, 2023; Mugobo and Mutize, 2016).

Table 1. Sovereign credit rating, ranks, and credit quality steps.

Grade	Credit Quality Step	Description	MOODY's		S&P		FITCH	
			Rating	#	Rating	#	Rating	#
Investment	1	Highest credit quality, minimum credit risk	Aaa	1	AAA	1	AAA	1
		Very high credit quality, very low credit risk	Aa1	2	AA+	2	AA+	2
			Aa2	3	AA	3	AA	3
			Aa3	4	AA-	4	AA-	4
	2	High credit quality (upper-medium grade)	A1	5	A+	5	A+	5
			A2	6	A	6	A	6
			A3	7	A-	7	A-	7
	3	Good credit quality, currently low credit risk	Baa1	8	BBB+	8	BBB+	8
			Baa2	9	BBB	9	BBB	9
			Baa3	10	BBB-	10	BBB-	10
Non-investment	4	Speculative elements, issuer faces major uncertainties and adverse conditions	Ba1	11	BB+	11	BB+	11
			Ba2	12	BB	12	BB	12
			Ba3	13	BB-	13	BB-	13
	5	High credit risk, but issuer still able to meet its financial commitments	B1	14	B+	14	B+	14
			B2	15	B	15	B	15
			B3	16	B-	16	B-	16
	6	Substantial risks	Caa1	17	CCC+	17	CCC+	17
		Extremely speculative	Caa2	18	CCC	18	CCC	18
		Default imminent	Caa3	19	CCC-	19	CCC-	19
			Ca	20	CC	20	CC	20
			Ca	20	C	21	C	21
		In default	C	21	D	22	DDD	22
			C	21	D	22	DD	23
			C	21	D	22	D	24

The two categories on the grading scale are "investment grade" and "non-investment grade", with the former denoting a relatively low default risk and the latter a high risk (Jiang, 2022). **Table 1** illustrates the division of both groups into three sub-levels once more.

3.2. The chronological progression of ESG

Before delving into its components, let's explore the origins and evolution of ESG (Ortega Mendoza, 2022). Originally, in the 1700s, ethical considerations rooted in morality, religion, and cultural values shaped conduct rules, often leading to bans on practices like slave labor (Mohammad and Wasiuzzaman, 2021). The concept of sustainability gained momentum in the 1980s and 1990s with early legislation emphasizing the triple bottom line of people, planet, and profit. The United Nations Framework Convention on Climate Change (UNFCCC) of 1994 aimed to stabilize greenhouse gas emissions. In the early 2000s, the UN Global Compact expanded the scope of sustainability to include labor, human rights, and anti-corruption practices, influencing ethical and sustainable business practices (Naifar, 2023; Zenios, 2024). ESG principles were integrated into investment analysis and decision-making processes following the launch of the United Nations' Responsible Investment program in 2006 (Preqin, 2020).

Over the past decade, several ESG-related laws and initiatives have emerged. For instance, the Task Force on Climate-Related Financial Disclosures (TCFD) was established in 2015, and the UN adopted the 17 Sustainable Development Goals (SDGs) (Lee, 2020).

In 2021, the introduction of the Sustainable Finance Disclosure Regulation (SFDR) significantly bolstered sustainable financing by promoting ESG values and their transparency (Collender et al., 2023). Investment funds now categorize their products under Articles 6, 8, or 9 based on their level of ESG integration (Preqin, 2020). Looking ahead, the Corporate Sustainability Reporting Directive (CSRD), slated to take effect, will enhance EU sustainability reporting standards in the coming years (Ten Bosch et al., 2022). This directive aims to standardize sustainability reporting, requiring detailed and transparent disclosure methods from all significant listed corporations and permanent establishments operating in the EU (European Commission, 2022).

3.3. Sovereign ESG rating

Integrating ESG (Environmental, Social, and Governance) factors into sovereign credit risk assessment models can reduce reference risks and enhance the resilience and solvency of public entities. These factors, along with ongoing global economic developments within the ESG ecosystem, can disrupt fiscal balances and notably mitigate sovereign credit risks. ESG considerations also promote collective advancement, economic growth, and financial oversight. The absence of ESG factors may lead to significant social costs, creating externalities that increase public sector expenditures and necessitate additional sovereign debt to fund expanded public spending. International bodies such as the International Monetary Fund (IMF) and the European Union (EU) have issued public recommendations endorsing ESG ratings

and their integration into sovereign risk analysis. This endorsement underscores how these factors help stabilize international capital flows and facilitate effective public debt management (Bäckman et al., 2023; Cancelli, 2021; Paudyn, 2024; Ribeiro, 2021; Ζιώγος, 2023).

One major criticism of using ESG information in sovereign credit ratings is its subjectivity in definitions and varying metrics, which can prioritize investor preferences over the long-term economic impacts of these factors. This can lead to ethical criteria differences among rating providers when developing standardized methodologies, potentially aligning results with investor demand rather than true economic impacts. Such conflicts of interest can arise due to the commercial nature of rating agencies, which cater to investor preferences in their decision-making models.

Moreover, discrepancies among rating agencies can fuel momentum and herd behavior in financial markets, providing irrelevant information and increasing market instability and volatility. Despite these challenges, negative sovereign ratings significantly impact public debt yields. Consequently, ESG ratings strongly influence country investments and attract financial newcomers, including ESG funds (Berg et al., 2022; Billio et al., 2021; Clementino and Perkins, 2021; Diez-Cañamero et al., 2020; Gibson et al., 2021; Rau and Yu, 2024).

When assessing environmental, social, and governance (ESG) risks associated with sovereign debt investments, sovereign ESG ratings play a crucial role. These ratings, provided by various independent firms, complement traditional credit analysis by evaluating how nations address and are exposed to ESG issues. Typically, these ratings assign different weights to several pillars, with governance often being the most heavily weighted. They utilize a wide array of data inputs, including qualitative components to address gaps in data or assess less quantifiable issues. However, challenges such as the lack of standardized industry approaches and limited public availability of specific ratings hinder broader acceptance and transparency in methodologies (Janet and Fan, 2022).

According to the Chartered Financial Analyst (CFA) Institute (2024), "A definitive taxonomy of ESG factors does not yet exist", reflecting the challenge in categorizing ESG issues solely as environmental, social, or governance concerns due to their interconnected nature. However, individual components within ESG factors can still be identified when examined separately (Dwyer, 2012).

Standard & Poor's methodology (2024) explores how environmental, social, and governance variables can influence corporate credit ratings. These factors, termed "ESG Credit Factors", are defined by Standard & Poor's to encompass elements that may significantly impact a company's creditworthiness, albeit to varying degrees based on industry and geographic context (Tuomi, 2023). Factors such as operating expenses, profitability, liquidity, risk management, and governance structure are examples of how these variables can affect credit ratings (Pineau et al., 2022). The importance of specific ESG credit variables in credit risk assessment and their ultimate impact on credit rating assignments are illustrated in the **Table 2** (Gratcheva et al., 2022).

Standard & Poor's (2024) notes that environmental factors can affect credit ratings through risks like waste, pollution, and climate change. For instance, fines for violating climate regulations can impact a company's financial stability (Danisman

and Tarazi, 2024). Social factors also play a role. If worker health and safety are compromised, it can lead to staff shortages and reduced productivity (Kousa, 2023). Conversely, an aging population can lower industry risks for certain businesses, creating opportunities for retirement homes and pharmaceutical companies (Lupo-Pasini, 2022).

Table 2. ESG credit factors.

Environmental	Social	Governance
▪ Electricity production from coal sources	▪ Fertility rate	▪ Control of corruption
▪ Renewable electricity output	▪ Income share held by lowest 20%	▪ Government effectiveness
▪ Annual freshwater withdrawals	▪ Access to electricity	▪ Political stability and absence of violence/terrorism
▪ Droughts, floods, and extreme temperatures	▪ School enrollment	▪ Regulatory quality
▪ Mean annual exposure to air pollution	▪ Net migration	▪ Rule of law
▪ Natural resources depletion	▪ Share of seats held by women in national parliaments	▪ Voice of doing business
▪ Population density	▪ Mortality rate (under 5 years old)	▪ Government expenditure on education
▪ CO_2 emissions per capita	▪ Poverty rate	

Governance factors can impact a company's brand and reputation. Poor risk management, corporate culture, and oversight can reduce a company's appeal and competitiveness. Violations of laws or tax regulations can have similar negative effects (Zheng and Siddik, 2022). It's important to note that while ESG factors can influence a company's credit rating positively or negatively, strong creditworthiness and excellent ESG performance are not always correlated (Yan et al., 2022).

Coordinating Natural, Social, and Administration (ESG) factors into sovereign credit evaluations represents a few difficulties. One significant test is the changeability in information quality and accessibility across various nations, especially in the Center East and North Africa (MENA) locale. For instance, it may be difficult to accurately evaluate the sustainability metrics of some nations in sovereign credit ratings due to a lack of comprehensive ESG data or standardized reporting frameworks. One more test lies in the administrative structures, which may not consistently need divulgence of ESG data or may have changing degrees of requirement.

Additionally, political precariousness and administration issues in some MENA nations can impede the compelling coordination of ESG factors into sovereign credit evaluations. It is possible for governments to place short-term economic objectives ahead of long-term sustainability, which may have an effect on their willingness to implement effective ESG policies. Moreover, financial backer mindfulness and acknowledgment of ESG models in sovereign obligation markets might be restricted, influencing market interest for ESG-adjusted securities and speculations.

Increasing data transparency and pursuing standardization across the MENA region are potential solutions to these issues. Promoting international reporting standards, such as those established by the Sustainability Accounting Standards Board (SASB) or the Global Reporting Initiative (GRI), could be one way to accomplish this.

ESG factors could be more fully incorporated into sovereign credit assessments if regulatory frameworks are strengthened to require disclosure of ESG information and incentives for governments to prioritize sustainable development goals are aligned.

Moreover, captivating with partners—including states, financial backers, and global associations—to bring issues to light about the monetary advantages of ESG mix and creating limit building projects to further develop ESG information assortment and investigation are pivotal advances. By tending to these difficulties and executing successful arrangements, MENA nations can upgrade their sovereign financial soundness, draw in dependable speculation, and advance manageable monetary turn of events.

4. The implementation of sustainability in the sovereign credit assessment in MENA Region

The MENA region includes 23 states and has significant economic diversity. There are small, wealthy oil-producing countries and countries with large populations but limited resources (Saud et al., 2023). Despite their oil resources and significant financial reserves, many MENA countries face economic and social problems that reduce welfare and cause social instability (Houshaimi, 2020). These problems include static political systems, high youth unemployment, skill mismatches, poverty, and poor education sector performance. Additionally, there are inefficiencies in working capital management, declining foreign direct investment, increasing corporate default rates, high corruption, legal security risks, environmental preservation liabilities, and a high reliance on public utilities (Namdar et al., 2021). Given these challenges, effective economic policy is essential for fiscal austerity (Matallah, 2022). Managing environmental, social, and governance (ESG) issues is increasingly recognized as crucial for policymakers. Ignoring these challenges can lead to long-term social and economic downsides (Polyzos et al., 2022).

4.1. MENA region and sustainability with a focus on the SDGs implementation

In the Middle East and North Africa (MENA) region, there has been increasing focus on sustainable development and implementing the Sustainable Development Goals (SDGs). These goals, launched by the United Nations in 2015, address global challenges like poverty, inequality, and climate change. They provide a framework for building a sustainable, equitable, and resilient world.

Despite this focus, the MENA region faces many challenges in achieving sustainable development and effectively implementing the SDGs. Academic research highlights several significant obstacles that hinder progress. These include a lack of quality education, high youth unemployment, challenges in integrating renewable energy, widespread water scarcity, and environmental degradation due to mining (Akinsemolu, 2020; Yan et al., 2023).

A review of current literature reveals extensive information on the evolution of sustainability, the challenges faced, and strategies for implementing the SDGs. For instance, Purvis et al. (2019) emphasize the importance of environmental, economic, and social aspects of sustainability. These pillars are essential for developing a

comprehensive understanding to implement the SDGs and achieve sustainable development in the MENA region. MURTAZA et al. (2023) show that sustainability initiatives are expanding and aligning with development goals. They stress the importance of integrating sustainable development into national and regional policies to effectively achieve the SDGs. Similarly, Razi and Dincer (2022) review the situation in the MENA area concerning renewable energy and the hydrogen economy, highlighting the need for green energy to reduce fossil fuel emissions, in line with SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). Ricciolini et al. (2022) use multi-criteria-based approaches to evaluate progress toward SDG implementation. Their analysis of governance and policy frameworks in European nations provides insights into which frameworks can be adapted for the MENA region. Additionally, Akabana and others (2018) research the impact of corporate social responsibility (CSR) on corporate financial performance, finding that CSR strategies positively affect financial performance. This demonstrates that a broader strategy for social and environmental sustainability can lead to economic growth. Hemidat et al. (2022), utilizing the circular economy as a framework, provide a comprehensive analysis of solid waste management. They highlight the need for MENA countries to adopt sustainable waste disposal strategies in line with the circular economy model, moving away from traditional methods. In summary, the literature on SDG achievement in the MENA region underscores the need for a multi-faceted framework with changes in policies and regulations. The concept of SDGs in these areas is still in its early stages (Djebali and Zaghdoud, 2020).

4.2. The sovereign credit assessment in MENA region

Sovereign credit ratings significantly influence investor perceptions and economic stability, making their examination crucial, especially in the MENA region. Naili and Lahrichi (2022) review the evolution of sovereign credit ratings, highlighting changes in methodologies and the presence of rating agencies over time. Romagnoli (2023) explores the sovereign debt crises of the 1980s in MENA economies, considering the economic and political conditions of that era. The paper uses an analytical framework to show how the "economic policy paradigm for development" evolved and how public debt in the 1970s led to sovereign debt crises. This historical context helps understand contemporary rating dynamics in the MENA region. Examining trends and patterns in sovereign credit ratings, including distribution changes and default history, provides insights into the region's economic resilience and vulnerabilities (El-Moussawi et al. 2024). Determinants of sovereign credit ratings in the include various economic, political, and institutional factors (García-Quero 2022). Studies by Bahn et al. (2021), Matallah (2022), and Tazar et al. (2022) have analyzed the importance of indicators such as GDP growth, inflation rates, political stability, governance quality, and external vulnerabilities in determining sovereign creditworthiness. Unique to the MENA context are factors like oil dependence, geopolitical tensions, demographic dynamics, and fiscal policies, which add complexity to assessing credit risk in the region. Understanding these determinants is essential for policymakers and investors to navigate the MENA financial landscape effectively.

Empirical evidence highlights the relationship between sovereign credit ratings and market outcomes in the MENA region. O'Sullivan et al. (2011) explored the opportunities and challenges in the MENA region, emphasizing risk perceptions and market volatility in response to credit rating adjustments. This understanding helps policymakers and investors make informed decisions by grasping the interplay between credit ratings and market dynamics in MENA economies. Research by Yalta and Yalta (2018) shows that despite a substantial body of literature on sovereign credit ratings in the MENA region, there is a notable gap regarding the specific impact of regional conflicts and geopolitical tensions on credit ratings. Understanding the intricate relationship between geopolitical risks and sovereign credit ratings is crucial for accurately assessing the financial stability of MENA countries and devising effective risk management strategies (Soltani et al. 2021).

Table 3. Country-specific case studies.

Country-specific case studies	**Sovereign foreign currency ratings**	**Context**	**Application**
Case Study on Saudi Arabia	A-/Stable/A-2	Vision 2030, Saudi Arabia's initiative to promote economic diversification and sustainability, has been launched.	Find out how sustainability commitments related to economic reform, investments in sustainable infrastructure, and climate goals are taken into account in sovereign credit assessments.
Case Study on the United Arab Emirates UAE	AA/Stable/A-1+	The UAE has taken a number of steps to diversify its economy and lessen its reliance on fossil fuels.	Dissect how sovereign credit evaluations consolidate manageability through interests in environmentally friendly power and the change to a greener economy.
Case Study on Morocco	BBB-/Negative/A-3	Morocco has committed to projects for sustainable development, such as the development of renewable energy and energy efficiency.	Examine how these initiatives are incorporated into national policies to promote environmental and social sustainability through sovereign credit assessments.
Case Study on Egypt	B/Stable/B	Egypt has set out on ambitious framework projects focused on maintainable turn of events, including sustainable power and green metropolitan preparation.	Investigate what sovereign credit evaluations in Egypt are meant for by these maintainable foundation drives and their effect on financial strength and ecological versatility.
Case Study on Jordan	B+/Stable/B	Initiatives focused on renewable energy and sustainable water management have emerged in Jordan as a result of the country's water shortage and environmental issues.	Examine Jordan's sovereign credit assessments in light of sustainability considerations, particularly in relation to strategies for managing water resources and adapting to climate change.
Case Study on Lebanon	B-/Stable/B	Lebanon is tending to natural debasement and monetary difficulties through reasonable the travel industry and environmentally friendly power projects.	Concentrate on how Lebanon integrates these maintainability endeavors into sovereign credit appraisals, featuring their part in improving monetary security and ecological supportability.
Case Study on Qatar	AA-/Stable/A-1+	Qatar is putting resources into practical framework projects, including green structures and sustainable power, as a feature of its Public Vision 2030.	Analyze how Qatar's sovereign credit appraisals mirror these supportability drives, accentuating their commitment to financial broadening and ecological stewardship.

Table 3 provides the country-specific case studies demonstrating the use of sustainability in sovereign credit assessment in the MENA region with the Sovereign foreign currency ratings according to Standard & Poor's Global (2019).

The contextual analyses exhibited in the table above show how various nations in the MENA locale are coordinating maintainability contemplations into their sovereign credit appraisals, exhibiting the variety of approaches and effects on financial and natural results.

4.3. The integrating of ESG factors in the SCA in the MENA region

As global awareness of sustainability grows, investors are increasingly using ESG criteria in their decisions. ESG represents a new strategic perspective that is likely to be profitable in the future, but it also introduces new risk considerations (Engle et al., 2021).

Furthermore, countries' environmental performance can improve with more ESG assessments influencing ratings decisions. As ESG integration becomes more important in credit ratings, adopting ESG criteria can enhance sustainability in the MENA region. In the short term, this implementation could help MENA countries swiftly align with ESG policies promoted by capital investors. Together, these factors suggest that ESG policies might effectively address the environmental challenges faced by MENA countries (Al-Hiyari and Kolsi, 2021; Buallay, 2022; Kouaib, 2022; Markopoulos et al., 2023; Mertzanis et al., 2024).

A significant body of research indicates that environmental challenges could worsen conditions in emerging markets, including those in MENA countries. These challenges encompass issues such as water scarcity, environmental degradation, air pollution, and the depletion of natural resources, which are critical concerns in the region. Rapid industrialization, population growth, and inefficient consumption and production patterns are identified as the primary drivers behind these environmental issues in MENA. Economic growth significantly impacts MENA's water use, carbon emissions, solid waste generation, and air quality. These environmental issues also lead to reduced agricultural diversity, declining food provision, higher unemployment, income disparities, health problems, stress, and loss of amenities. Together, these factors underscore the urgent need for sustainability in the MENA region (Mrabet et al., 2021; Shokoohi et al., 2022; Sofuoğlu and Ay, 2020; Sheikhzeinoddin et al., 2022; Tahir et al., 2022; Usman et al., 2021).

Pineau et al. (2022) study the impact of ESG factors on sovereign credit ratings in MENA. Meanwhile, Mallek et al. (2024) analyze how ESG components affect bank stock returns in the region. However, research specifically on ESG's influence on sovereign credit ratings in MENA countries remains limited (El Khoury et al., 2023). Understanding how ESG considerations affect credit ratings could offer valuable insights for policymakers and investors integrating ESG into risk assessments. This gap motivates our study. Meng and Shaikh (2023) prioritize ESG factors and investment strategies for green finance using fuzzy Analytic Hierarchy Process (AHP) and Weighted Aggregated Sum Product Assessment (WASPAS) methods. Their research highlights strategies like green bonds, ESG integration, and renewable energy funds, stressing the importance of incorporating ESG criteria into green finance. The

scarcity of such analyses in MENA underscores the need for our study. By addressing challenges in sovereign credit risk assessment within the ESG framework, researchers can enhance understanding of creditworthiness's implications for financial stability and sustainable development. This forms the core research question of our study.

5. Analysis of existing literature

To identify a gap in the existing literature, we opted to critically analyze its strengths and weaknesses in the **Table 4** below.

Table 4. Advantages and limitations the existing literature.

Reference	Contribution	Limitations
Haddad and Hakim, 2007	The paper analyzes sovereign risk dynamics in MENA countries after September 11, emphasizing economic factors, credit ratings, and external events' effects on sovereign spreads. It offers insights for policymakers and investors on regional borrowing costs and risk premiums, proposing practical strategies for assessing sovereign risk and managing borrowing decisions post-major geopolitical events.	The study offers valuable insights into sovereign risk determinants in MENA countries. However, limitations include its regional and temporal focus, potentially affecting generalizability. Additionally, reliance on panel data analysis may introduce assumptions and limitations like endogeneity or omitted variable bias. Moreover, data sources such as credit ratings and economic indicators may be prone to measurement error or availability constraints, affecting result robustness.
Zeaiter and El-Khalil., 2016	The paper advances sovereign debt default literature using the EBA method to analyze key explanatory variables from prior studies. It identifies robust predictors of defaults in MENA, offering insights for policymakers and researchers. By emphasizing economic and political factors, it enhances understanding of sovereign defaults in the region.	The paper provides valuable insights and recommendations but has limitations. It relies on historical data from 1970 to 2010, potentially missing recent developments in the MENA region's economic and political landscape. Its regional focus may limit generalizability to other regions facing sovereign debt challenges. Moreover, the complexity of sovereign defaults and the numerous factors involved present challenges in fully capturing all relevant determinants in the analysis.
Hamida, 2023	The study contributes by providing an overview of sovereign risk and the use of sovereign credit default swaps (CDS) as a risk measure and rating substitute. It also analyzes country-specific and global factors affecting sovereign risk, improving understanding of the mechanisms driving sovereign default, especially in the MENA CDS market.	The availability and quality of data on sovereign credit default swaps and economic variables may impact the robustness of the analysis.
Haddad and Hakim, 2008	The research enhances understanding of how war and terrorism events influence sovereign risk in the Middle East, offering insights for investors and policymakers. It examines the correlation between specific events and sovereign spreads, revealing dynamics in risk pricing in the international bond market. The findings provide valuable information for evaluating the impact of geopolitical tensions on economic stability and investor confidence in the region.	One limitation of the study is its temporal scope, ending economic data in December 2006, which precludes analysis of more recent events like bombings in Algeria and Ankara in 2007, hindering statistical testing of their impact on sovereign yields. Additionally, focusing on selected events and countries may not fully capture all factors influencing sovereign risk in the Middle East. Future research incorporating a broader range of events and countries could offer a more comprehensive understanding of the relationship between war, terrorism, and sovereign risk in the region.
Yalta and Yalta, 2018	The paper contributes to the literature on sovereign credit ratings by addressing the issue of bias in ratings assigned by Fitch, Moody's, and S&P to 99 countries, with a specific focus on MENA countries. It explores regional biases, home country biases, and inter-institutional consistency in credit ratings. The study also utilizes the seemingly unrelated regressions (SUR) method to provide more efficient estimates, which is a novel approach compared to previous research.	The study's findings are subject to the availability and accuracy of data provided by credit rating agencies and other sources. Inaccurate or incomplete data could affect the robustness of the results. The analysis relies on the assumption that credit ratings accurately reflect the creditworthiness of countries, which may not always be the case due to subjective judgments or other factors influencing the rating process. The study focuses on a specific region (MENA countries) and may not capture biases or factors affecting credit ratings in other regions or globally. Generalizing the findings beyond the MENA region may require additional research and analysis.

Table 4. (*Continued*).

Reference	Contribution	Limitations
Bouri et al., 2020	The paper contributes to the literature by providing empirical evidence on the relationship between oil market conditions and sovereign risk in MENA countries. It extends previous studies by examining quantile dependence, time-variability, and asymmetric effects in the oil-CDS nexus. The use of a recursive-rolling window approach enhances the understanding of how oil prices and volatility impact sovereign risk, offering insights for investors and policymakers.	While the study offers valuable insights, some limitations should be noted. The analysis focuses on a specific region (MENA) and may not be generalizable to other regions. The study period covers specific years and may not capture long-term trends or structural changes in the relationship between oil market conditions and sovereign risk. Additionally, the study's methodology and data sources may have inherent limitations that could affect the robustness of the results.
Al-shboul et al., 2020	The study contributes to the existing literature by providing empirical evidence on the relationship between political risk and bank stability in the MENA region, particularly focusing on Islamic banks. The findings highlight the importance of considering political risk factors in assessing the stability of banks, especially in regions prone to political instability. The research also sheds light on the differences in the response of Islamic and conventional banks to political risk, offering insights for policymakers and practitioners in the banking sector.	Despite its contributions, the study has some limitations that should be considered. Firstly, the analysis is based on a specific region (MENA) and may not be generalizable to other regions with different political and economic contexts. Secondly, the study's focus on a selected set of risk dimensions may overlook other potential factors influencing bank stability. Additionally, the use of panel data techniques, while common in such studies, comes with its own assumptions and limitations that could affect the robustness of the results. Future research could address these limitations by expanding the analysis to include a broader range of risk factors and extending the study to other regions for comparative purposes.
Hayet, 2023	The paper contributes to a better understanding of sovereign default risk by emphasizing the importance of political and institutional factors in assessing sovereign risk. By incorporating political variables such as the political system, stability, and governance quality, the study sheds light on how these factors influence the level of sovereign default risk. The empirical analysis using panel regression provides insights into the impact of political and government effectiveness on the valuation of sovereign credit risk over time and across countries.	While the paper provides valuable insights into the role of political and institutional factors in determining sovereign risk, there are some limitations to consider. One limitation is the focus on a specific region (MENA) which may limit the generalizability of the findings to other regions. Additionally, the study period from Q1 2006 to Q3 2021 may not capture all relevant changes in political and institutional dynamics that could affect sovereign risk. Furthermore, the complexity of measuring and integrating political variables compared to economic and financial variables may introduce challenges in the analysis and interpretation of results.
Göll et al., 2019	The paper contributes to the understanding of the complexities and obstacles hindering sustainable development in the MENA region. By analyzing the slow progress and the specific challenges faced by MENA countries, it sheds light on the need for integrated approaches to policymaking, innovative strategies, and enhanced regional cooperation to advance sustainable development goals. The discussion on the role of the SDGs as guiding principles for national strategies and the impact of conflicts on development efforts provides valuable insights for policymakers, researchers, and practitioners working in the region.	While the paper provides a comprehensive overview of the sustainable development landscape in the MENA region, it may have limitations in terms of the depth of analysis on specific country-level initiatives and the detailed examination of the effectiveness of existing policies and programs. Additionally, the paper focuses on the broader challenges related to conflicts and instability, potentially overlooking other factors influencing sustainable development outcomes in individual countries. Further research and case studies could offer a more nuanced understanding of the dynamics shaping sustainable development in the MENA region.

After reviewing the literature, we identified a research gap in our study:

Previous research has primarily focused on how ESG factors impact credit risk assessment and business performance in corporate contexts, rather than sovereign entities. However, there is a noticeable lack of studies explicitly addressing the integration of ESG ratings and SDGs into models for sovereign credit assessment in the MENA region. Many studies examining ESG factors' influence on sovereign credit risk often overlook how these elements can be effectively combined with SDGs to enhance sustainable sovereign credit assessment methods.

Moreover, there is a scarcity of empirical studies utilizing Multi-Criteria Decision Analysis (MCDA) approaches to incorporate SDGs and ESG ratings into frameworks for sovereign credit assessment. MCDA offers a systematic approach to

consider multiple factors and stakeholder preferences, providing valuable insights into the complex decision-making processes involved in sovereign credit assessment in MENA.

Therefore, there exists a significant knowledge gap concerning the potential benefits and challenges associated with aligning SDGs and ESG ratings to achieve sustainable sovereign credit evaluation in the MENA region.

6. Discussion

Our motivation for analyzing MENA countries stems from the urgent regional need to develop an assessment model that identifies the credit sustainability of indebted states. Our dialogue with current knowledge on the topic and our notes makes a relevant contribution to scholars and financial actors operating in the sovereign bond market. They require regulatory indications that explicitly support the integration of sustainability issues in the sovereign credit assessment process.

In the MENA context, the achievement of sustainability transformation brings about the political and economic development, highlighting the co-dependence of environmental challenges, financial stability, and political reform commitment.

This emphasizes the importance of considering regional specificity, as intrastate tensions play a crucial role. Policies should be sensitive to socio-political dynamics and increasing wealth disparities. This significantly impacts policy selection and effectiveness in development. In this context, innovative policies are strongly needed to balance promotion objectives, maximize potential benefits, and minimize negative impacts. How can the credit-based financial system be mobilized to support normative adjustments and contribute to achieving sustainable transformation?

The integration of environmental, social, and governance (ESG) factors across nations is significantly impacted by regional variations within the MENA region. When compared to North African nations that rely more on agriculture and tourism, for instance, Gulf Cooperation Council (GCC) nations face unique difficulties due to their oil-rich economies. The GCC's approach to sustainable energy policies and carbon emissions targets is influenced by their reliance on fossil fuels, whereas the arid climates of the North African countries may make water management and agricultural sustainability priorities.

The MENA region's political stability also varies widely, affecting ESG regulations' consistency and enforcement. When compared to nations that are going through political upheaval or transitions, those with governance structures that are more stable tend to have clearer regulatory frameworks and better implementation of ESG standards.

ESG practices are also influenced by social and cultural norms. Social factors may be easier to incorporate into sovereign credit assessments in nations with stronger CSR or community engagement traditions, whereas other nations may encounter resistance or cultural barriers.

7. Implications for policy and practice

Therefore, our central question is how deficiencies in environmental and social dimensions of sustainability could affect sovereign credit risk assessments. We

explore pathways in these dimensions that could potentially influence how markets and credit rating agencies assess sovereign credit risk.

In the context of the study countries, there is often limited accountability to the public and international community, leading to weaker incentives for sovereigns to excel in economic, social, and environmental dimensions. This is particularly evident during periods of capital scarcity, exacerbated by ambitious social goals set by governments and dependence on fossil fuels in some nations.

An important aspect of our research is the focus on the region. The governance characteristics of the MENA region, with five out of twenty countries classified as highly authoritarian, provide governments significant discretion in choosing and implementing sustainability policies.

The discussion on finance's role in fostering global progress is gaining traction among scholars, practitioners, and regulators. Therefore, assessing the sustainability of sovereign credits is not only pertinent to finance academics but also crucial for countries, regions, and global policymakers striving for sustainable development.

8. Future directions and recommendations

- Improving Data Collection and Reporting

Enhancing the availability and quality of ESG data is crucial for integrating sustainability into sovereign credit assessments. MENA countries should invest in developing robust data collection and reporting systems to provide accurate and comprehensive sustainability-related information.

- Developing Standardized ESG Frameworks

Developing standardized frameworks for assessing ESG factors will help ensure consistency and comparability across countries. International organizations and credit rating agencies should collaborate to establish universally accepted ESG criteria and methodologies.

- Promoting Sustainable Economic Policies

Policymakers in the MENA region should prioritize sustainable economic policies that address environmental, social, and governance issues. This includes investing in renewable energy, improving social services, and strengthening governance institutions. Such policies not only enhance creditworthiness but also contribute to long-term economic stability.

- Stakeholder Engagement and Collaboration

Engaging with various stakeholders, including governments, investors, and international organizations, is essential for promoting the importance of sustainability in credit assessments. Collaborative efforts can facilitate knowledge sharing, capacity building, and the adoption of best practices across the region.

9. Conclusion

This paper reviews the extent to which sustainability concepts can affect sovereign creditworthiness in most of the countries of the Middle East and North Africa region. For this purpose, we examine scientific and other studies to find out the importance revealed in examining the relationship between sustainability and sovereign credit assessment. We note the political and institutional differences present

in every country and stress the need for individual research on this topic. This will be the future direction. In line with credit rating agencies, which have begun to attach relevance to sustainability dimensions in the sovereign credit assessment, academia should also give great importance to examining the relationship between sustainability and the evolution of sovereign credit in practice.

We suggest that more studies should reexamine the implications of ratings for countries adopting stringent environmental policies and countries attempting to attract responsible investors by disclosing ESG information, because the link between ESG factors and credit ratings is understudied, and thus the dynamic ratings methodologies and how they reflect on sovereign ratings deserve more discussion.

Additionally, we argue the integration of sustainability into sovereign credit assessments in the MENA region is imperative for accurately evaluating a country's creditworthiness and economic resilience. While challenges such as data quality and lack of standardization persist, there are significant opportunities for enhancing credit evaluation processes through the incorporation of ESG factors. By focusing on long-term economic health and adhering to global sustainability standards, MENA countries can improve their credit ratings and attract more investment, ultimately contributing to their sustainable development.

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