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ESG PERFORMANCE AND FINANCIAL CONSTRAINTS OF BANKS IN MENA: THE MODERATING ROLE OF POLITICAL INSTABILITY

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Abstract
The impact of Environmental, Social, and Governance (ESG) performance on financial constraints in politically volatile emerging markets remains underexplored, particularly in the Middle East and North Africa (MENA) region. This study explores how ESG performance affects banks' financial constraints in MENA, and how political instability moderates this effect. The fixed effects model was used to analyse panel data from 182 banks in 14 MENA countries (2019–2023). This study showed that ESG performance negatively affects financial constraints, with environmental performance and governance practices having the greatest influence. However, social performance provides varying financial rewards, reflecting stakeholders' interests under uncertain circumstances. Political instability strengthened the negative effect of ESG on financial constraints. These findings challenge global ESG paradigms and advocate context-specific remedies that increase economic resilience and governance in fragmented institutional markets. This research synthesizes agency, stakeholder, and institutional perspectives to improve theoretical implications and offer practical recommendations for emerging national banks dealing with sustainability and political instability.

Keywords: ESG performance; financial constraints; political instability; MENA banks; panel data analysis.

1. Introduction

Organizational resilience, risk management, and stakeholder trust depend on environmental, social, and governance (ESG) principles in the 21st century (Mohamad Ariff et al., 2024). When climate change and socio-political inequalities accelerate, investors, regulators, and customers expect openness and responsibility from corporations to balance profitability with environmental and social welfare (Friede et al., 2015; Ananzeh, 2024). Banking illustrates this paradigm by distributing capital and stabilizing the economy. ESG-savvy banks obtain green funding, lower regulatory fines, and reputational capital, thereby reducing their financial limitations. ESG-free institutions face increased scrutiny, capital constraints, operational inefficiencies, and increasing liquidity and solvency concerns (Falavigna & Ippoliti, 2022; Wongi, 2025). These dynamics are well-documented in established markets, but their importance to politically unstable developing economies, notably in Middle East and North Africa (MENA), is understudied, leaving both scholarly and policy gaps (Alahdal et al., 2024). However, sustainable financing in MENA is paradoxical. Its hydrocarbon-dependent economy and dry climate render it vulnerable to climate change, requiring fast transitions to renewable energy and water-efficient technologies (The World Bank, 2022). However, institutional fragmentation, geopolitical instability, and regulatory uncertainty limit long-term investments and increase financial constraints (IMF 2023). Political instability, such as the Arab Spring

upheavals (2011–2018) and conflicts in several MENA countries, investor confidence, supply chains, and banking sectors, have suffered (Abu Khalaf & Awad, 2024). MENA banks also face structural challenges, such as rising non-performing loans (NPLs), which averaged 7% regionally in 2023, and low profitability, with a return on assets (ROA) of 1.2%, significantly below global standards. Due to delayed loan repayments and higher bad debt provisions, the COVID-19 pandemic cut bank profitability by 44% in 2020 (Elnahass et al., 2022). This complex environment makes the adoption of ESG principles inconsistent, with some countries in the region promoting sustainability initiatives and others prioritizing economic survival over environmental and social responsibility (Jawad & Abdulla, 2022).

Theories have provided numerous viewpoints on these connections. Agency theory states that shareholder-manager conflict causes financial limits, necessitating governance mechanisms to reduce opportunism and improve resource allocation (Jensen & Meckling, 1976). The stakeholder theory emphasizes the importance of ESG practices in legitimizing firms in their socio-political environments and attracting ethical investors (Freeman et al., 2010). Institutional theory warns that macro-level instability, such as policy enforcement or public discontent, might symbolize ESG initiatives symbolic (DiMaggio & Powell, 2000; Maabreh, 2024). Studies have employed these concepts independently, but seldom together, notably when studying the moderating effect of political instability on ESG-financial restrictions. MENA's regulatory complexity and weak rule of law contribute to inadequate governance reforms, and stakeholder objectives might shift during crises, preferring economic survival over sustainability (Gull et al., 2023). This theoretical heterogeneity emphasizes the need for a comprehensive framework to explain how ESG performance, governance quality, and political instability impact the financial constraints of unstable developing nations.

Research on ESG and financial limitations has three significant weaknesses. Systemic risk impacts MENA firm-level tactics, although stable, industrialized economies have attracted the most empirical research (Citterio & King, 2023; Zhang & Lucey, 2022). Second, ESG is multidimensional, but few studies have disaggregated its effects, leaving unclear whether carbon reduction or diversity and social activities boost financial resilience (Orazalin et al., 2019). Political instability is widespread in emerging nations; however, its moderating effect is understudied. The MENA region's average Political Stability Index score (-0.8) suggests continuing volatility (The World Bank, 2022; Al Rousan, 2024), few studies have statistically examined how this instability affects ESG activities. These constraints prevent policymakers and practitioners from creating context-specific sustainability-financial stability initiatives.

This study addresses these gaps with two research questions: How do ESG and affect MENA bank financial constraints? How does political instability affect ESG and financial constraints? This study uses panel data from 182 banks in 14 MENA countries (2019–2023) and agency, stakeholder, and institutional theories to examine the role of sustainability in financial management. The research places ESG in the institutional frameworks of emerging countries, enhancing scholarly discussion and providing practical insights for organizations seeking to balance ethics and economics. This study contributed to the literature by examining the ESG in the context of middle east and by examining the moderating role of political instability. The next section discusses the literature review followed by the research methodology, findings, implications and conclusion.

2. Literature review

2.1 Theoretical Framework

This study deploys three theories to explain the associations between variables. Agency, stakeholder, and institutional theories describe how internal governance dynamics, external stakeholder pressure, and macroeconomic volatility impact financial and ESG performance.

Agency theory states that financial restrictions arise from mismatched incentives between principals (shareholders) and agents (managers) who favor short-term earnings or personal interests over long-term value growth (Jensen & Meckling, 1976). ESG activities mitigate conflict by eliminating information asymmetry through openness and accountability. Environmental disclosures and governance improvements, such as independent boards, reassure investors, and minimize capital costs (El Ghoul et al., 2011; Thosony, 2025). When there is insufficient enforcement increases agency costs and investor distrust in politically unstable states, ESG may fail to reduce financial restrictions.

The stakeholder theory states that corporations must balance the interests of consumers, workers, and communities to be legitimate and profitable (Freeman et al., 2010). ESG performance promotes stakeholder trust and decreases reputational and operational risks by reducing carbon emissions, labor practices, and board diversity. Trust increases green finance availability and consumer loyalty within stable institutional frameworks, thereby eliminating financial limitations. In politically unstable environments, stakeholder objectives may change quickly, thereby devaluing ESG activities. MENA investors affected by conflict may choose liquidity over sustainability, weakening the relationship between ESG and financial restrictions.

According to institutional theory, ESG practices cannot provide financial returns because of macro-level political instability (DiMaggio & Powell, 2000). In volatile environments with unequal regulatory frameworks, fragile rule of law, and civil upheaval, institutions create uncertainty that affects stakeholder confidence and long-term planning. When institutions are unstable, ESG initiatives, which often require robust legal frameworks (e.g., renewable energy subsidies) and regular enforcement, fail to reduce financial constraints. In the MENA region, these three theoretical lenses interact in a complex and context-specific manner. Agency theory is particularly relevant due to the dominance of family ownership, state-owned banks, and politically connected board structures (Fariha et al., 2022; Haque, 2019). These features increase agency problems, information asymmetries, and opportunistic behaviour, making ESG-related governance reforms such as board independence and disclosure critical for reducing capital costs and attracting external investors. For example, independent audit committees and mandatory ESG reporting can mitigate insider control and reduce opacity.

Stakeholder theory, while typically emphasizing alignment with social and ethical expectations, takes on a distinct form in MENA. In volatile and resource-driven economies, stakeholder expectations may prioritize stability, employment, and basic service delivery over long-term environmental or social transformation (Jawad & Abdulla, 2022). Banks responding to these stakeholder expectations through ESG initiatives such as responsible lending, environmental impact disclosures, or inclusive HR policies can legitimize their operations, access green capital, and reduce reputational risk. Yet, this stakeholder legitimacy is fragile and shifts rapidly in response to political events or crises.

Institutional theory is central in understanding the constraints facing ESG implementation in MENA. Countries across the region display fragmented regulatory enforcement, varying levels of rule of law, and susceptibility to political shocks (DiMaggio & Powell, 2000; Kandil, 2024). These factors often result in ESG initiatives being symbolic or ceremonial intended to satisfy external observers rather than drive real internal change. For example, ESG scores might be driven more by formal disclosures than actual performance improvements, especially in politically sensitive sectors such as banking.

Taken together, these theories offer a causal pathway: In MENA, banks face agency problems exacerbated by concentrated ownership, weak enforcement of stakeholder rights, and institutional volatility. ESG practices particularly in governance and environmental performance act as credibility-enhancing tools that reduce uncertainty, improve investor

confidence, and thereby lower financial constraints. However, this pathway is weakened or disrupted under high political instability, which introduces uncertainty into stakeholder expectations and institutional enforcement mechanisms. As such, political instability serves as a critical moderator, reducing the efficacy of ESG as a financial constraint-reduction strategy.

2.2 ESG Performance in MENA

Several MENA nations and organizations have prioritized sustainable performance. The national government has implemented various sustainable performance measures to support the UN Agenda 2030 (Alzubi et al., 2023; Taha et al., 2023). The implementation and integration of ESG are growing in MENA (Alshura et al., 2023; Alzubi & Akkerman, 2022). MENA's dry climate, water shortages, and dependence on oil and gas make environmental issues urgent. Climate change, resource depletion, and pollution are becoming increasingly important to governments and businesses (El Khoury et al., 2023). MENA banks are progressively incorporating environmental factors into lending and investment choices to promote sustainable development (Harabida et al., 2023).

The social aspects of MENA include labour, human rights, and community relations. This area struggles with gender equality, workforce diversity, and social inclusion. Countries in the region are making reforms to reduce gender inequality and strengthen the labour market (A. Ben Ali & Chouaibi, 2024). Businesses and banks are increasingly understanding the need for social responsibility, including fair labour and community development. Progress is uneven and varies among countries in the region (Jawad & Abdulla, 2022). The MENA governance challenges include business transparency, board diversity, and regulatory compliance (Genedy & Sakr, 2017). Some MENA nations have rules to increase board diversity and transparency (Haque, 2019). However, regulation enforcement and governance efficiency vary widely (Mohamad Ariff et al., 2024). Business family ownership and government influence on governance structures affect ESG integration (Fariha et al., 2022).

ESG aspects change banks' and enterprises' risk profiles and investment attractiveness, thereby affecting financial constraints (Crifo et al., 2017). ESG policies initially affect banks' finances, but can decrease risk, improve reputation, and reduce their cost of capital. ESG integration improves financial performance and stability and reduces financial constraints over time. Therefore, MENA regulatory regimes are changing to accommodate ESG concerns, which may affect financial constraints. Innovation and efficiency driven by regulatory pressures may ease financial constraints over time (Andrey, 2023). ESG considerations may limit the short- and long-term financing of MENA banks and corporations. Environmental, social, and governance issues may raise operational and regulatory expenses, and reduce funds. However, ESG practices may improve risk management, financial performance, and opportunities, which may reduce some of these limitations over time.

Studies in emerging markets such as ASEAN (Zhang & Lucey, 2022), Sub-Saharan Africa (Citterio & King, 2023), and Latin America (Akbar et al., 2021) have demonstrated that ESG performance can mitigate financial constraints, particularly through enhanced governance mechanisms. However, these effects often rely on regulatory enforcement and stakeholder alignment factors that are inconsistent in MENA. Compared to these regions, MENA faces more pronounced political instability and disclosure gaps, which limit the operationalization of ESG beyond compliance. This underscores the need to investigate how and under what conditions ESG translates into financial resilience in this specific geopolitical context.

2.3 Political Instability in the MENA Region

Political instability is especially prevalent in MENA because of its complex socio-political dynamics, historical wars, and resource-based economies. Geopolitical battles, regulatory changes, social unrest, and resource reliance have caused regional instability. Hostilities in some countries in the region have caused humanitarian and economic problems that affect

banks (Jamal & Zhijun, 2024; Al-Taani et al., 2025). Security risks and capital migration have caused many banks to close, thereby destroying their financial systems. The Arab Spring and subsequent demonstrations in some countries have worsened economic disruptions and forced banks to handle operational risks. Oil-dependent economies are also vulnerable to price volatility and government mismanagement, which increase instability (Kandil, 2024).

Political instability threatens MENA banks' governance, operations, and financing. Regulatory uncertainty plagues governance. Regulations often change and banks must react rapidly. Political instability may increase NPLs during recessions. In unstable countries, investors and depositors lose trust in banks because of security concerns (Saha et al., 2022). A financial system mistrust from recurrent disasters erodes public trust. Political instability affects the governance, operational resilience, and financial stability of MENA banks. Sociopolitical factors render the region susceptible; therefore, tackling these concerns requires legislation, risk management, and international cooperation. Transparent governance, cybersecurity, and economic diversification can help MENA banks mitigate political turmoil and strengthen their financial systems.

2.4 Conceptual Framework and Hypotheses

The conceptual framework posits that ESG performance mitigates financial constraints through mechanisms rooted in agency, stakeholder, and institutional theories, although its efficacy is contingent on the stability of the political environment. Agency theory suggests that ESG practices reduce information asymmetry and align managerial incentives with shareholder interests, thereby lowering financing costs (Jensen & Meckling, 1976). Stakeholder theory emphasizes that ESG initiatives build legitimacy and trust among diverse stakeholders, such as investors, customers, and regulators, which enhances access to capital and reduces reputational risks (Freeman et al., 2010). However, institutional theory highlights how political instability disrupts the regulatory and socio-political frameworks necessary for ESG initiatives to translate into financial benefits, as systemic risks overshadow firm-level sustainability efforts (DiMaggio & Powell, 2000; Shubailat et al., 2025). Based on several previous studies, the control variables in this study include the country level, which includes GDP and inflation, and the bank level, which includes bank size, leverage, bank age return on assets (ROA), return on equity (ROE), bank type, year, and market to book ratio (Q. Ali et al., 2022; Habib, 2023; Harymawan et al., 2021; Natalia & Arni Rudiawarni, 2022; Orazalin et al., 2019). Figure 1 presents the conceptual framework of this study.

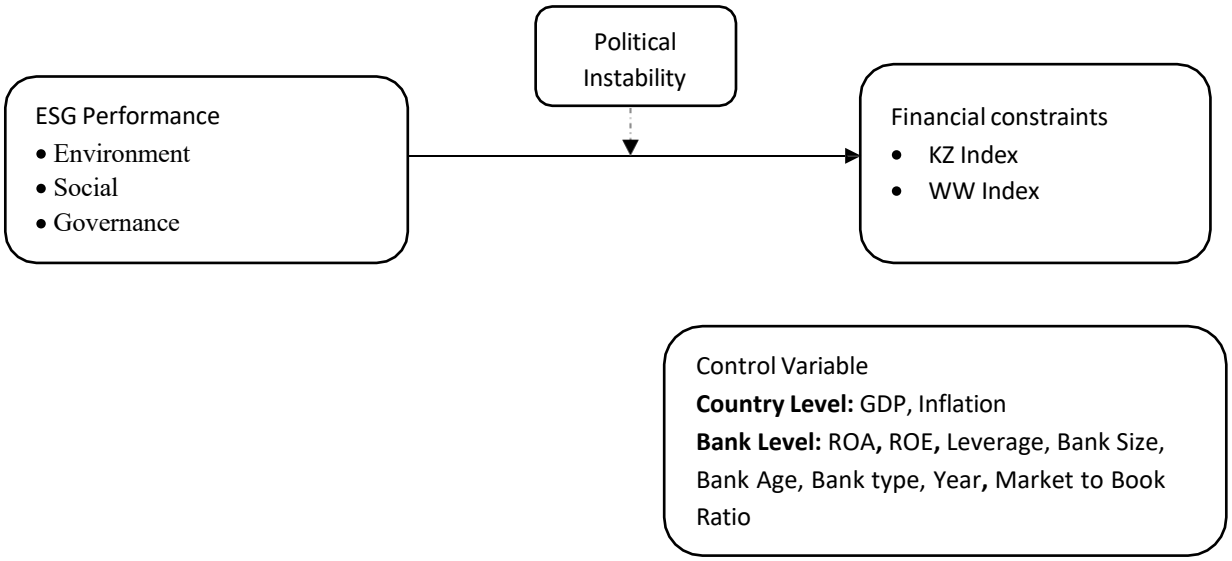

Figure 1: Conceptual Framework

2.4.1 ESG and Financial Constraints

ESG practices, while lauding to enhance firm sustainability, can worsen financial constraints. Increased operational costs and resource misallocations are important factors. Some ESG initiatives, such as sustainable technology and gender diversity, require large upfront expenditures. Ma et al. (2022) found that effective ESG, particularly the social component, increases ESG commitments but reduces green innovation in high-risk settings because of cost concerns. Menicucci and Paolucci (2022) also state that banks view social initiatives as maintaining high capital adequacy ratios, indicating a cautious stance that may divert resources from growth-focused programs.

Liu and Wu (2023) found that boards and strict governance mechanisms reduce credit and operational risk taking. ESG compliance regulations and stakeholder demands can also strain budgets. Gull et al. (2023) find that corporate governance changes, such as disclosure requirements, increased transparency, and increased compliance costs for smaller banks. Therefore, this study assumes that ESG can reduce banks' financial constraints in MENA.

H1: ESG has a negative effect on financial constraints.

Environmental performance, which emphasizes long-term profitability and resource efficiency, can help corporations create stable cash flows and secure external finance. Prior literature presented mixed findings regarding the effect of environmental performance on financial constraints. For instance, Liu et al. (2021) found that companies in China with high environmental performance has better access to capital and can mitigate the financial constraints. Similarly, in China, the study of Akbar et al. (2021) found a negative relationship between environmental performance and financial constraints. The negative association between environmental performance and financial constraints were also evident in the study of Agyei-Boapeah et al. (2024) who found that strong environmental performance in terms of carbon emission can reduce the financial constraints among emerging economies. Accordingly:

H1a: Environmental performance has a negative effect on financial constraints.

Employee well-being, diversity, and community involvement can enhance stakeholder trust and operational resilience, and reduce budgetary limitations. Menicucci and Paolucci (2022) discovered that gender-diverse boards, an important aspect of social performance, enhance capital adequacy ratios, reduce risk-taking, and enhance financial stability. Strong social performance measures include regular board meetings, and diverse leadership reduces credit risk and improves financing availability (C. Liu & Wu, 2023). Diversification and community growth may initially strain budgets (Gull et al., 2023). In MENA, social performance is expected to negatively impact financial constraints. Therefore:

H1b: Social performance has a negative effect on financial constraints.

Open, accountable, and ethical governance enhances investor trust and regulatory compliance, thus alleviating financial limitations. Independent boards and strong audit committees reduce corporate risk and improve financial performance (Kalia & Gill, 2023). Arenas-Torres et al. (2022) conclude that gender diversity and excellent governance reduce financial crisis risk by improving risk management and operational efficiency. Governance performance laws and administrative requirements, including ESG reporting, may raise short-term expenses (Gull et al., 2023). Sustainable governance's long-term advantages, such as better funding and fewer reputational difficulties, outweigh the early expenses, negatively affecting financial constraints.

H1c: Governance performance has a negative effect on financial constraints.

2.4.2 Political Instability as a Moderator

Political instability is the key to ESG-outcome linkages. Farooq et al. (2023) linked economic policy uncertainty to ESG efficacy, whereas Abodoma (2018) indicated that political instability affects cash holdings. ESG operations may be profitable in politically stable nations with clear

regulations, reliable enforcement, and shared stakeholder expectations (Ben Ali & Chouaibi, 2024). Stable firms may save operating costs and attract ethical investors by linking ESG measures to long-term governmental benefits such as renewable energy subsidies or carbon tax exemptions (Jamal & Zhijun, 2024). This alignment reduces capital expenses and demonstrates external lenders' trustworthiness by increasing transparency and responsibility. Government reversals, regulatory uncertainty, and public displeasure hinder ESG's efficacy in politically unpredictable circumstances (Kandil, 2024). Sudden environmental legislation or green energy incentive withdrawals may undermine ESG activities, causing sunk investments and cash flow disruptions. Political instability lowers investor trust and raises operational risks, undermining ESG's financial management (Tjandrasa et al., 2020).

Further empirical studies are needed to validate this moderating effect. Tourism and liquidity creation are less profitable when political instability exists (Saha et al., 2022). Political instability slows economic growth and stock market development, and disrupts long-term investments (Hoque et al., 2018). Information asymmetry and the perceived risks from political instability deter investors and creditors from investing in ESG-aligned companies. Under stable conditions, ESG practices increase stakeholder trust and operational efficiency and enhance financial resilience. ESG performers, especially those with strong governance structures, experience fewer financial constraints (Bolin & Rana, 2021). ESG's financial benefits are greater for stable institutions than for chaotic ones. Therefore, we propose the following hypothesis:

H2: Political stability moderates the effect of ESG on financial constraints.

3. Research Method

This quantitative research includes secondary panel data for 2019–2023 from 182 banks in 14 MENA countries. Data originate from numerous databases: Refinitiv Eikon, a global platform for corporate sustainability and financial data, provides ESG ratings and financial indicators, whereas the World Bank's Development Statistics provides GDP and inflation. This study uses ESG scores obtained from the Refinitiv Eikon database, formerly known as Thomson Reuters Asset4. Refinitiv ESG ratings are constructed based on over 500 environmental, social, and governance indicators, collected from publicly available sources such as company reports, regulatory filings, and third-party news sources. Each of the three pillars (Environmental (E), Social (S), and Governance (G)) is scored on a scale of 0–100, and the aggregate ESG score represents a weighted average of these dimensions.

Environmental scores evaluate resource use, emissions, and environmental innovation. Social scores reflect human rights, labour standards, training, diversity, and community involvement. Governance scores include board composition, executive compensation, shareholder rights, and audit practices. While Refinitiv provides a structured and widely accepted ESG metric, its application in emerging markets such as the MENA region is not without limitations. ESG disclosure standards and transparency levels vary significantly across countries, and in some cases, ESG data may be incomplete or heavily reliant on voluntary disclosure, which risks greenwashing. Furthermore, regulatory enforcement mechanisms differ, affecting how genuinely firms engage with ESG practices. To mitigate these limitations, this study:1) Disaggregates ESG into its three pillars (E, S, G) to identify which dimensions drive the overall effect, 2) Conducts robustness checks across both the WW and KZ indices of financial constraints, and 3) Uses a fixed-effects model to control for time-invariant country-level reporting norms and disclosure environments. Although ESG metrics in MENA are evolving, Refinitiv remains one of the most comprehensive and standardized sources currently available, and its inclusion allows for comparative analysis across countries and years.

Political instability ratings are based on the World Bank's Worldwide Governance Indicators (WGI), especially the Political Stability and Absence of Violence/Terrorism indicator, which

ranged from -2.5 to +2.5. The sample covers all active MENA commercial and Islamic banks with publicly available annual reports and ESG disclosures throughout the study period. Excluded banks with inadequate data or mergers and acquisitions ensured uniformity. The resulting sample of 910 bank-year observations (182 banks × five years) represents a well-balanced panel.

The MENA region was chosen because of its unique institutional challenges, including geopolitical volatility, regulatory fragmentation, and hydrocarbon dependency, which provide a critical context to examine how political instability moderates ESG's financial impact (IMF, 2023; Jawad & Abdulla, 2022). The 2019–2023 timeframe captures recent shocks such as the COVID-19 pandemic and post-Arab Spring economic reforms, enabling an analysis of ESG resilience during crises.

The dependent variable in this study is financial constraints. The variable was measured using the WW and KZ indices (Zhang et al., 2023). The independent variable in this study was the ESG performance (Refinitiv Eikon database). This performance was measured using three dimensions: environmental, social, and governance. The moderator is political instability, measured using an index from the global governance indicator (The World Bank, 2022). The control variables of this study included country-level (GDP and inflation) and bank-level (leverage, bank size, bank age, ROA, ROE, bank type, year, and market-to-book ratio) (Gull et al., 2023; Kalia & Gill, 2023; C. Liu & Wu, 2023; Ma et al., 2022; Menicucci & Paolucci, 2022; Al-Taani et al., 2025; Shubailat et al., 2025). The main models are tested using the general formula:

Financial constraints= independent variable (ESG), control variables. While for the moderators, an interaction between the independent variable and the moderator is created. Table 1 shows the measurement of the variables, their definitions, and their sources.

Table 1: Measurement of the variables

SN	Variables	Symbol	Definition	Source
1.	Financial Constraints measured by WWindex	WWindex	WWscore = − 0.091 X1 − 0.062 X2 + 0.021 X3 − 0.044 X4 + 0.102 X5 − 0.035 X6. Where: X1 = Cash Flow/Total Asset X2 = If Cash Dividend is Paid represent 1 X3 = Long-term Debt/Total Assets X4 = Natural log * Total Asset X5 = % Change in sales for Industry X6 = % Change in Sales for Firm Higher Value of WWscore Represents Tighter Financial Constraints.	Refinitiv Eikon database
2.	Financial Constraints Measured by KZindex	KZindex	KZ index$1_{i,t}$ = − 1.002 × $X1_{i,t}$ + 3.139 × $X2_{i,t}$ − 39.368 × $X3_{i,t}$ − 1.315 × $X4_{i,t}$ Where: X1 = Operating Income/Total Asset X2 = Total Debt/Total Asset X3 = Total Dividend/Total Asset X4 = Cash and Cash Equivalent/Total Asset	Refinitiv Eikon database
Independent Variables				

SN	Variables	Symbol	Definition	Source
1.	ESG Score	ESG	Refers to a thorough rating that assesses an organization's performance using data from the three main pillars of corporate governance, social responsibility, and environmental sustainability.	Refinitiv Eikon database formally known as Thomson Reuters Refinitiv
2.	Environmental Score	Escore	Evaluates how a business affects the air, land, water, and ecosystems, among other natural systems. It assesses how well the business uses best practices to reduce environmental risks and seize opportunities to increase shareholder value over the long run.	Refinitiv Eikon database
3.	Social Score	Sscore	Assesses a company's application of best management practices in building trust and loyalty among its employees, clients, and society at large. It is a reflection of the business's standing and operating permit, both of which are essential to its capacity to produce sustained shareholder value.	Refinitiv Eikon database
4.	Governance Score	Gscore	An evaluation based on a company's procedures and systems that guarantee executives and board members behave in the long-term shareholders' best interests	Refinitiv Eikon database
Moderating Variable				
1.	Political instability	PI	Ranged from -2.50 (weak) to +2.50 (strong)	World governance indicator
Control Variables at Firm Level				
SN	Variables	Symbol	Definition	Source
1.	Return on Equity	ROE	Return on Equity: It is the ratio of net income to equity	Refinitiv Eikon database/annual report
2.	Bank Size	Bsize	Firm Size: Natural logarithm of companies' total assets	Refinitiv Eikon database/ annual report
3.	Leverage	Lev	Leverage: firms' long-term debt divided by common equity	Refinitiv Eikon database/ annual report
4.	Profitability	ROA	Return on Asset is measured by Total Income over Total Assets	Refinitiv Eikon database/ annual report

5.	Bank Age	Bage	Firm age, the natural logarithm of the difference between the year studied and the year the firm was founded.	Refinitiv Eikon database/ annual report
6.	Bank type	BT	A dummy variable where 1 is given if the bank is commercial and zero if the bank is Islamic.	Refinitiv Eikon database/ annual report
7.	Year	Year	A dummy variable where 1 is given to the period before COVID19 and zero for the period after COVID 19.	Refinitiv Eikon database/ annual report
8.	Market to book ratio	MTBR	The ratio of market-to-book value	Refinitiv Eikon database/ annual report
Control Variable at Country Level				
1.	GDP per capita	GDP	Growth Domestic Product: Measured by world bank development indicators	Refinitiv Eikon database
2.	Inflation	INF	Changes in inflation rate yearly	World bank

This study employs the fixed-effects (FE) model to examine the impact of ESG performance on financial constraints. The Hausman test confirms the appropriateness of FE over random-effects (RE), as the null hypothesis of no systematic difference in coefficients is rejected at the 5% level. The fixed-effects model controls for all time-invariant unobservable characteristics (e.g., national legal traditions, ownership models, or regulatory frameworks), making it suitable for studying MENA banks, which vary widely in institutional structures. The model also accounts for bank-level heterogeneity, which may otherwise bias ESG-performance estimates. While FE addresses some concerns of omitted variable bias, it does not fully eliminate endogeneity arising from reverse causality or simultaneity. To mitigate this, the model incorporates lagged ESG scores and control variables such as profitability (ROA, ROE), leverage, and macroeconomic indicators (GDP, inflation), which proxy for firm health and country-level dynamics.

4. Findings

4.1 Diagnostic Tests and Robustness

To ensure methodological rigor, the following tests were conducted: The first test included outliers, where some values were identified as outliers, and the trimming process was conducted to adjust the data. Next, the normality of some values showed that they were not normally distributed. Residuals are winsorized at the 1st and 99th percentiles, and non-normal variables (e.g., leverage) are transformed using the Van der Waerden method to approximate normality (Sheskin, 2007). The skewness and kurtosis values were acceptable, as shown in Table 2. Multicollinearity was assessed by checking variance Inflation Factors (VIF). All VIF values for variables were below 5, well under the threshold of 10, indicating no severe multicollinearity (Hair et al., 2019). Heteroscedasticity and autocorrelation were examined. The Breusch-Pagan and Breusch-Godfrey tests confirmed the absence of heteroscedasticity ($p>0.05$) and autocorrelation ($p>0.10$).

Table 2: Diagnostic Test

Variable	Normality		Multicollinearity	
	Skewness	Kurtosis	Tolerance	VIF
Financial Constraints (WWindex)	-1.046	.824	.934	1.071
Financial Constraints (KZindex)	-1.207	-1.297	-	-
ESG Score	1.230	-1.209	.624	1.602

Environmental Score (Escore)	-1.458	.816	.848	1.180
Social Score (Sscore)	1.020	1.371	.688	1.454
Governance Score (Gscore)	1.196	1.608	.969	1.032
Political Instability (PI)	1.807	1.36	.600	1.668
Return on Equity (ROE)	-1.087	1.05	.438	2.282
Bank Size (LogBsize)	-.305	1.43	.530	1.951
Leverage (Lev)	1.281	1.273	.295	3.389
Profitability (ROA)	-1.392	1.188	.265	3.775
Bank Age (Bage)	1.747	-1.374	.565	1.771
Bank Type (BT)	-1.387	1.188	.991	1.009
Year (COVID-19)	1.401	1.156	.246	4.065
Market-to-Book Ratio (MTBR)	1.156	1.283	.432	2.311
GDP per Capita (LogGDP)	1.639	.691	.470	2.211
Inflation (INF)	.247	-.803	.650	1.531

To address potential endogeneity concerns particularly reverse causality and omitted variable bias between ESG performance and financial constraints, this study adopts the System-Generalized Method of Moments (System-GMM) estimator proposed by Blundell and Bond (1998). This estimator is appropriate for our panel dataset, which includes a large number of banks (N = 182) over a relatively short time period (T = 5 years). The System-GMM approach allows for the inclusion of lagged dependent and independent variables and uses lagged instruments to correct for simultaneity bias and measurement error. Lagged values of ESG and its subcomponents (environmental, social, and governance) were used as instruments, treating them as potentially endogenous. Control variables (e.g., GDP, inflation, bank size) were treated as exogenous. Model validity was assessed using the Hansen J-test for over-identifying restrictions and the Arellano-Bond AR(1) and AR(2) tests for autocorrelation. The results of the GMM estimation as shown in Table 3 are robust and consistent with the fixed-effects estimates. Diagnostics confirm the absence of second-order serial correlation and validate the instrument set. These additional tests strengthen the causal interpretation of ESG's impact on financial constraints in MENA banks.

Table 3: Endogeneity

Diagnostic Test	Result
Hansen J-Test (p-value)	0.412
Arellano-Bond AR(1)	p = 0.000 (expected)
Arellano-Bond AR(2)	p = 0.283 (acceptable)
Number of instruments	28
Number of groups	182

4.2 Descriptive Analysis

Descriptive information on the study variables is shown in Table 4. The financial constraints measures, WWindex and KZindex, exhibit significant variability, with WWindex ranging from -2.50 to 1.80 (mean = -0.45, SD = 0.85) and KZindex ranging from -5.00 to 3.50 (mean = -1.20, SD = 1.50). The ESG performance metrics reveal a wide range of sustainability practices among MENA banks. The overall ESG score ranges from 10.00 to 90.00 (mean = 45.00, SD = 20.00), indicating significant disparities in sustainability performance. The environmental (Escore), social (Sscore), and governance (Gscore) sub scores also showed considerable variability, with means of 40.00, 42.00, and 50.00, respectively. Political instability (PI), a critical contextual variable, ranges from -1.91 to 1.01 (mean = -0.80, SD = 1.20), indicating

that the MENA region experiences moderate to high levels of political turbulence. These findings highlight the economic diversity across the MENA region, with some countries experiencing higher inflation and lower GDP per capita than others.

Table 4: Descriptive Information Study Variables

Variable Name	Min	Max	Mean	Std. Dev.
Financial Constraints (WWindex)	-2.50	1.80	-0.45	0.85
Financial Constraints (KZindex)	-5.00	3.50	-1.20	1.50
ESG Score	10.00	90.00	45.00	2.00
Environmental Score (Escore)	5.00	85.00	40.00	1.80
Social Score (Sscore)	8.00	88.00	42.00	1.90
Governance Score (Gscore)	12.00	92.00	50.00	2.20
Political Instability (PI)	-1.91	1.01	-0.80	1.20
Return on Equity (ROE)	-10.00	25.00	8.50	5.00
Bank Size (LogBsize)	10.00	25.00	18.00	3.50
Leverage (Lev)	0.10	0.59	0.33	0.20
Profitability (ROA)	-5.00	15.00	2.50	3.00
Bank Age (Bage)	5.00	89.00	25.00	10.00
Bank Type (BT)	0.00	1.00	0.60	0.50
Year (COVID-19)	0.00	1.00	0.60	0.50
Market-to-Book Ratio (MTBR)	0.50	3.00	1.50	0.70
GDP per Capita (LogGDP)	11	39	14.3	10.00
Inflation (INF)	1.00	63.00	5.00	4.00

4.3 Hypotheses Testing

A Hausman test was conducted to select the appropriate testing model. The results of the Hausman test showed that the fixed-effects model is appropriate. STATA was used to test all the hypotheses. Normally, the hypotheses are deemed significant at $p < 0.05$. Table 5 presents the results of the hypotheses testing. This includes the direct effect of ESG and its components on financial constraints measured by the KZ and WW indices.

Table 5: Summary of Hypotheses Testing

H	Financial constraints	KZ Index	WW Index
H1	ESG	-0.17***	-0.12**
H1a	Environmental	-0.37***	-0.08**
H1b	Social	-0.19**	-0.01
H1c	Governance	-0.10**	-0.16**
	GDP	-0.16***	-0.11**
	Inflation	0.15***	0.33**
	ROA	-0.09**	-0.08
	ROE	0.06	0.02
	Leverage	0.15***	0.14**
	Bank size	-0.11***	-0.14**
	Bank age	-0.01	0.06
	Bank type	0.09***	0.19**
	Year	0.11**	0.21**
	Market to book ratio	0.04	-0.04

For H1, this study proposes that ESG performance reduces financial constraints. The findings indicate that higher ESG performance is associated with lower financial constraints, as evidenced by the negative coefficients for both the KZ Index (-0.17***) and the WW Index (-0.12**). For the first sub-hypothesis (H1a), this study proposes that environmental performance reduces financial constraints. Environmental performance has the most negative influence on financial restrictions, with values of -0.37*** (KZ Index) and -0.08** (WW Index). In the second sub-hypothesis (H1b), the social dimension has a substantial negative connection with the KZ Index (-0.19**) but not the WW Index (-0.01). In the third sub-hypothesis (H1c), governance performance lessens financial constraint. Governance procedures negatively impact financial constraints by -0.10** (KZ Index) and -0.16** (WW Index).

For the control variables, the effect varies with GDP and has a negative effect, whereas inflation has a positive effect. ROE has no influence on financial constraints, whereas ROA reduces financial constraints (-0.09** for the KZ Index). Higher leverage raises financial constraints by 0.15*** (KZ Index) and 0.14** (WW Index). Larger banks have fewer financial constraints. Bank age has no significant effect, while bank type (commercial vs. Islamic) shows mixed results, with coefficients of 0.09*** (KZ Index) and 0.19** (WW Index). The COVID-19 period is associated with higher financial constraints (0.21** for the WW Index), possibly due to panic and depositors withdrawing their funds as well as uncertainty in the economy. The market-to-book ratio has no significant impact on financial constraints.

Table 6 shows the moderating effects of PI on ESG and financial constraints. The models explain 51.2% of the variance in the KZ Index and 62.5% of the variance in the WW Index, indicating a strong explanatory power. The interaction term between ESG and political instability (ESG × PI) is positive and significant for both the KZ Index ($0.11**, p<0.01$) and the WW Index ($0.09**, p<0.05$). This finding indicates that political instability increases the negative relationship between ESG performance and financial constraints.

Table 6: Moderating Effect of Political Instability

KZ Index	Coef. (B)	P>t	WW index	Coef. (B)	P>t
ESG	-0.19**	0.000	ESG	-0.14**	0.005
PI	0.12**	0.001	PI	0.12**	0.009
ESG*PI	0.11**	0.009	ESG*PI	0.09**	0.011
GDP	-0.14***	0.004	GDP	-0.11**	0.005
Inflation	0.15***	0.000	Inflation	0.17**	0.013
ROA	-0.08**	0.005	ROA	-0.08**	0.010
ROE	0.05	0.293	ROE	0.02	0.677
Leverage	0.14***	0.000	Leverage	0.11**	0.013
Bank size	-0.10***	0.011	Bank size	-0.14**	0.000
Bank age	-0.02	0.591	Bank age	0.06	0.312
Bank type	0.10**	0.012	Bank type	0.18**	0.000
Year	0.09**	0.014	Year	0.19**	0.000

Market to book ratio	0.03	0.210	Market to book ratio	-0.04	0.201
F (13, 878)	71.77		F (12, 878)	88.51	
Prob>F (P-value)	0.000		Prob>F (P-value)	0.000	
R-squared	.512		R-squared	.625	

To account for heterogeneity across the MENA region, sub-sample analyses were conducted by grouping countries based on economic and political characteristics. Specifically, we split the sample into:

- Gulf Cooperation Council (GCC) countries (e.g., Saudi Arabia, UAE, Kuwait, Qatar, Bahrain, Oman)
- North African countries (e.g., Egypt, Tunisia, Morocco, Algeria)
- Levant and conflict-affected economies (e.g., Iraq, Lebanon, Jordan, Syria)

These groupings reflect differences in institutional strength, governance quality, and ESG regulatory enforcement. ESG's effect on financial constraints was then estimated separately for each sub-group using the fixed-effects model and, where relevant, System-GMM. The sub-sample analysis allows us to determine whether the ESG-financial constraint relationship varies by institutional context and political environment. Table 7 shows the sub-sample analysis.

Table 7: Sub-Sample Analysis

Group	ESG → KZ Index	ESG → WW Index	Significant Components	Notable Observations
GCC Countries	-0.22***	-0.18***	Governance, Environmental	Strong ESG effect; high institutional quality
North Africa	-0.09**	-0.04	Environmental only	Weaker ESG effect; limited enforcement
Levant/Conflict States	-0.04	-0.01	None	ESG not significant; political instability dominates

The sub-sample analysis reveals significant heterogeneity in the ESG–financial constraint relationship across MENA sub-regions. In GCC countries, where institutional structures and ESG frameworks are more developed, ESG performance strongly reduces financial constraints. This suggests that effective governance and regulatory support enhance the financial benefits of ESG activities. In contrast, ESG has weaker or no significant effects in North African and conflict-affected economies, likely due to institutional weaknesses, regulatory inconsistency, and lower investor confidence. These results reinforce the importance of contextualizing ESG policy efforts and highlight the limitations of applying a one-size-fits-all ESG strategy across MENA.

To test the robustness of our main results, we estimated additional models using the random-effects (RE) estimator and lagged ESG scores as regressors. The RE model serves as a benchmark to compare coefficient consistency, while lagged ESG helps mitigate potential reverse causality. The findings remain consistent in terms of sign and significance, particularly for the KZ Index. Environmental and governance scores consistently reduce financial constraints, while social scores remain weaker. This reinforces the robustness of our results across specifications. Table 8 shows the robustness check.

Table 7: Robustness Check

Variable	FE (Main Model)	RE Model	Lagged ESG (FE)
ESG Score → KZ Index	-0.17***	-0.15**	-0.14**
ESG Score → WW Index	-0.12**	-0.11*	-0.10*
Observations	910	910	728
R^2	0.512	0.438	0.505

5. Discussion and Implications

This study uncovers the complex relationship between ESG performance, political instability, and financial constraints in MENA banks, revealing the region's sustainability-finance nexus. The negative link between ESG performance and financial constraints supports stakeholder theory, which claims that resolving ESG concerns creates legitimacy and trust, draws ethical capital, and cuts financing costs. Energy efficiency projects lower costs and stabilize cash flows, while governance changes like independent boards eliminate agency conflicts and align executive actions with long-term shareholder interests (Jensen & Meckling, 1976). Sociopolitical instability and survival may overshadow community-oriented efforts in MENA (Jawad & Abdulla, 2022). In crises, hazardous market parties prioritize environmental and governance safeguards over social equality, demonstrating ESG's contextual importance.

Institutional consistency boosts ESG profits, but political instability lowers them (DiMaggio & Powell, 2000). In conflict-affected nations, regulatory instability and infrastructure breakdowns diminish the cost benefits of ESG investments such as renewable energy and alter investor preferences toward liquidity over sustainability (Farooq et al., 2023). In stable economies, oil price volatility and geopolitical tensions increase systemic risks, making ESG financial results unstable in terms of institutional fragmentation. This favours location-specific political risk solutions above global ESG rules.

These findings align with recent evidence from ASEAN markets (Zhang & Lucey, 2022) and Central Asia (Habib, 2023), where ESG performance helped firms mitigate financing risks. However, unlike these relatively stable regions, MENA's political and institutional fragmentation introduces volatility that weakens the social performance component and amplifies the signalling value of governance. This adds nuance to the ESG literature by highlighting the contextual hierarchy of ESG dimensions in politically unstable regions. Unlike prior studies in developed markets, this paper demonstrates that governance and environmental performance reduce financial constraints even under conditions of institutional volatility. This reflects a context-specific mechanism in MENA, where ESG likely serves as a signal of transparency, operational risk control, and access to green finance. Social performance, by contrast, has weaker or non-significant effects, particularly in politically unstable countries, suggesting ESG effectiveness is conditional on regulatory support and institutional trust. These results expand existing ESG literature by showing that in fragile emerging markets, ESG primarily works through governance assurance and investor risk perception, not necessarily through stakeholder inclusivity.

Furthermore, the robustness of our findings was supported by System-GMM estimation, which controlled for endogeneity in ESG-financial constraint relationships. The consistent negative association between ESG and financial constraints even after correcting for simultaneity reinforces the reliability of the results. This study advances sustainability research by integrating developing market agencies, stakeholders, and institutional theories. Governance

and environmental efficiency reduce agency costs, but political volatility changes stakeholders' goals and legitimacy. This study challenges ESG's universality of ESG and provides context-sensitive frameworks for MENA's socio-political variability of MENA. Cost-effective technology and board independence may assist MENA banks in reducing their budget constraints. Policymakers must standardize ESG regulations, increase judicial enforcement, and encourage stability-oriented investments, such as green bonds, for infrastructure resilience to tackle institutional issues. Regional collaboration and GCC-wide sustainability certifications may reduce geopolitical tensions and improve cross-border banking. Politicians should combine ESG reforms with macroeconomic stability measures such as countercyclical fiscal policies and political risk insurance. Mandatory ESG disclosures and independent audits would boost investor trust, and public-private cooperation might aid in sustainability-crisis preparation.

6. Conclusion

This study examined how ESG performance influences financial constraints among banks in 14 MENA countries using a fixed-effects panel approach applied to 910 bank-year observations (2019–2023). ESG scores were disaggregated into environmental, social, and governance components. The findings show that environmental and governance performance significantly reduce financial constraints, while social performance had weaker effects. Political instability moderated the ESG-financial constraint relationship, dampening the effectiveness of ESG initiatives in high-risk contexts. ESG performance reduces MENA banks' financial and political risks. Regional institutional sustainability promotes environmental and governance resilience, while accepting disruptions of geopolitical instability. Policymakers and practitioners must relate ESG objectives to macroeconomic stability to ensure sustainable financing supports long-term resilience. Despite its notable findings, this study had several limitations. Refinitiv ESG rankings may overlook arid region-specific considerations like water conservation or Sharia-compliant management.

The ESG scores used in this study are based on Refinitiv's standardized methodology. However, in the MENA context, where corporate reporting practices vary and mandatory ESG reporting is still emerging, these scores may not fully capture the substance of environmental or social initiatives. As such, they may reflect symbolic compliance rather than actual sustainability outcomes. Future research could complement ESG scores with textual analysis, stakeholder surveys, or in-country ESG audits to improve measurement validity. Publicly traded MENA banks exclude smaller, unlisted banks, which may favour larger, more stable companies. The five-year timeframe (2019–2023) includes COVID-19, but may not properly depict regulatory ESG implications. Future research should address these issues using mixed techniques. Studies on ESG adoption over decades may identify short-term problems using structural patterns. Regional ESG problems, such as Sharia compliance and international sustainability regulations, may emerge from qualitative banking CEO and regulator interviews. Adding microfinance firms and comparing MENA to volatile countries, such as Sub-Saharan Africa, may improve generalizability. Localised ESG indicators that account for MENA's petroleum dependency and water issues may strengthen policy frameworks and link sustainability with regional interests.

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