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Do Sovereign ESG Indicators Improve Portfolio Resilience in Emerging and Developing Markets? Evidence from Open Financial and ESG Data

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Abstract

Environmental, social, and governance (ESG) information is increasingly used in portfolio construction, risk monitoring, and sustainable investment mandates. Yet the empirical role of ESG in emerging and developing markets remains contested because many studies rely on proprietary firm-level ratings, limited samples, or non-reproducible data sources. This article develops an open-data framework for testing whether sovereign ESG indicators are associated with equity-market resilience in emerging and developing economies. Using World Bank Sovereign ESG, Worldwide Governance Indicators, World Development Indicators, Global Financial Development indicators, FRED global risk controls, and Fama-French emerging-market factor files, the study constructs a country-year panel covering the period 1996-2024. The research design links lagged sovereign ESG indicators to annual equity-index returns, stock-market volatility, and crisis-period performance. The empirical strategy combines descriptive portfolio-style comparisons, fixed-effects country-year regressions, and crisis interaction models for 2008-2009, 2020, and 2022. Descriptive evidence suggests that governance indicators are more consistently related to stock-market volatility than to annual return levels, supporting a resilience interpretation rather than a simple ESG-alpha interpretation. The study contributes to sustainable finance research by offering a transparent, reproducible approach to sovereign ESG analysis that can be extended by investors, researchers, and policy analysts working with open financial data.

Keywords: sovereign ESG, emerging markets, portfolio resilience, sustainable finance, stock-market volatility, open data

1 Introduction

Environmental, social, and governance criteria have become a central part of contemporary investment practice. Institutional investors use ESG information to screen securities, manage reputational risk, monitor transition exposure, and construct portfolios that are expected to be more resilient under regulatory, environmental, and social stress. ESG integration has also expanded beyond listed equities into fixed income, sovereign risk analysis, and country allocation models. Industry evidence shows that sustainable-investment assets remain a major component of global investment practice, even though fund flows, asset-manager expectations, and disclosure requirements have become more volatile and more demanding (Global Sustainable Investment Alliance, 2021, 2023; Index Industry Association, 2022; Bioy, 2024; Deloitte and The Fletcher School at Tufts University, 2024). This shift is especially relevant for emerging and developing markets, where macroeconomic instability, political risk, foreign-exchange exposure, debt vulnerability, and governance weaknesses can influence both market returns and capital preservation.

The key empirical question is not simply whether ESG "increases returns." In portfolio management, a more defensible question is whether ESG indicators contain information about resilience. Resilience refers to the ability of an asset, market, or portfolio to avoid severe losses, absorb shocks, maintain lower volatility, or recover after periods of systemic stress. This perspective is important because ESG characteristics may not generate persistent excess return in normal periods, but they may be informative when investors reassess country risk, institutional quality, climate vulnerability, or social stability during crisis episodes.

Existing research provides mixed evidence. Some studies find that ESG-related portfolios and high-ESG firms perform relatively better during market stress, including the COVID-19 shock. Broadstock et al. (2021), for example, show that ESG performance was associated with stronger stock-market performance and lower risk during the COVID-19 crisis in China. Nofsinger and Varma (2014) find that socially responsible mutual funds can outperform conventional funds in crisis periods while underperforming in non-crisis periods. Albuquerque et al. (2020) similarly document evidence of resilience for high environmental and social stocks during the COVID-19 market collapse. At the same time, the broader ESG-finance literature remains heterogeneous, and meta-analyses show that the relationship between ESG and financial performance depends on sample, method, horizon, market, and ESG measurement approach.

Emerging markets make the question more complex. Firm-level ESG scores are often unavailable, inconsistent, costly, or less comparable across countries. Corporate disclosure quality also differs substantially across jurisdictions. In this context, sovereign ESG indicators can provide a practical alternative. A sovereign ESG approach evaluates country-level characteristics such as rule of law, control of corruption, political stability, environmental risk, renewable energy use, health, education, social inclusion, debt vulnerability, and macroeconomic stability. These indicators are not substitutes for firm-level ratings, but they can capture institutional and structural conditions that shape market resilience.

This question is also relevant for financial strategists working with high-technology companies, AI projects, and startup investment decisions. High-tech ventures are frequently evaluated through forward-looking financial models, uncertain ROI assumptions, and risk-adjusted capital allocation frameworks. Prior work by Azatyan (2025a, 2025b, 2025c) emphasizes risk minimization in high-tech project investment, ROI metrics for AI projects, and adaptive financial models for fast-growing technology companies. The present article extends that finance-oriented research trajectory from project-level investment assessment to country-level market resilience and sovereign ESG risk signals.

This article asks whether sovereign ESG indicators improve the analysis of portfolio resilience in emerging and developing markets. Specifically, it examines whether lagged ESG indicators are associated with annual equity-market returns, stock-market volatility, and crisis-period performance after controlling for macroeconomic and debt-related conditions. The analysis is designed around open data. The use of public datasets is important because it allows independent replication and avoids reliance on proprietary ESG scores that cannot be inspected by readers.

The contribution of this study is threefold. First, it shifts the ESG-finance question from return maximization toward resilience, downside risk, and volatility. Second, it applies sovereign ESG information to emerging and developing markets, where open and comparable firm-level ESG data remain limited. Third, it offers a reproducible data pipeline based on World Bank, FRED, and Fama-French data sources. This makes the article useful not only as an empirical study but also as a methodological template for researchers and investment analysts who need transparent ESG evidence.

The structure of the article follows the format of empirical sustainable finance research. Section 2 reviews the literature on ESG performance, crisis resilience, volatility spillovers, and sovereign ESG. Section 3 describes the data and sample construction. Section 4 outlines the empirical methodology. Section 5 presents descriptive evidence and diagnostic econometric tests. Section 6 discusses implications for investors and policymakers.

Section 7 concludes.

2 Sovereign ESG, Crisis Resilience, and Emerging-Market Risk

The relationship between ESG and financial performance has been studied from multiple perspectives. Early ESG research focused on whether firms with stronger sustainability profiles achieve higher profitability, lower cost of capital, or better stock-market performance. Friede et al. (2015) synthesize a large body of empirical evidence and show that the ESG-financial performance relationship is frequently non-negative, although the strength and direction of the relationship vary across contexts. Giese et al. (2019) explain potential channels through which ESG can affect equity valuation, including cash-flow effects, idiosyncratic risk, and systematic risk exposure. Related sustainable-investment research also examines multicriteria portfolio selection, the evolution from socially responsible investment to ESG, and the interaction between ESG exposure and stock returns (Ballestero et al., 2012; Townsend, 2020; Karoui and Nguyen, 2022).

A second strand of research focuses on ESG during periods of financial stress. This literature is especially relevant for the present article because resilience is more observable during shocks than during normal periods. Nofsinger and Varma (2014) find that socially responsible funds display crisis-period outperformance but weaker performance during normal times. Broadstock et al. (2021) examine Chinese CSI300 constituents during the COVID-19 crisis and show that high-ESG portfolios outperformed low-ESG portfolios and that ESG mitigated financial risk during crisis conditions. Albuquerque et al. (2020) find that firms with stronger environmental and social profiles experienced higher returns and lower volatility during the COVID-19 crash. Cerqueti et al. (2021) similarly frame ESG investing as a potential channel for reducing systemic risk, while Sabbaghi (2023) provides international evidence on ESG and volatility risk. These findings suggest that ESG may operate as a form of risk insurance rather than a constant return premium.

A third strand examines volatility, spillovers, and connectedness in ESG markets. De Giuli et al. (2025), the structural model article used as a formatting benchmark, investigate volatility spillovers among sustainable equity indices using daily returns from 2014 to 2022. Their article uses a conventional empirical finance structure: a concise abstract, a theory and literature section, a detailed data and methods section, separate results subsections, multiple tables, multiple figures, and a full reference list. Their findings show that ESG equity indices are interrelated and that ESG emerging-market and clean-technology indices can be vulnerable to external shocks. This article adopts a similar scientific presentation but uses a different empirical design because the available open sovereign ESG data are annual and country-level rather than daily and index-level.

The broader risk-spillover literature also provides useful methodological discipline. Granger (1969) established a formal approach to predictive causality, while Andersen and Bollerslev (1998), Diebold and Yilmaz (2009, 2012, 2014), Barndorff-Nielsen et al. (2010), and Barunik and Krehlik (2018) developed influential approaches to volatility, downside risk, connectedness, and systemic risk measurement. ESG and clean-energy applications build on this tradition by examining the interaction between sustainable equity indices, conventional equity markets, oil prices, green bonds, commodity markets, commodities, investment styles, policy uncertainty, and financial uncertainty (Kumar et al., 2012; Dutta and Hasib Noor, 2017; Henriques and Sadorsky, 2018; Reboredo et al., 2017; Reboredo and Ugolini, 2018, 2020; Elsayed et al., 2020; Bouri et al., 2022; Cagli et al., 2023; Gao et al., 2022; Khalfaoui et al., 2022; Papathanasiou et al., 2022; Sahoo and Kumar, 2022; Sharma et al., 2022; Urom et al., 2022). The present article does not estimate high-frequency spillover models because the sovereign ESG data are annual, but it adopts the same risk-centered logic: ESG indicators should be evaluated by their association with volatility, vulnerability, and crisis transmission rather than only by mean returns.

Sovereign ESG research is related but distinct. Country-level ESG indicators may affect market resilience through institutions, legal stability, corruption control, political risk, fiscal capacity, environmental vulnera-

bility, and social cohesion. Margaretić and Pouget (2018) show that governance and social performance are related to the cost of capital in emerging-market sovereign bonds. Hubel (2022) finds that stronger sovereign ESG performance is associated with lower sovereign credit default swap spreads and flatter credit curves. Gratcheva et al. (2021) emphasize that sovereign ESG data require careful interpretation because country-level indicators combine institutional, environmental, social, and development-related information. UNCTAD (2021) also links sustainable fund growth to the broader financing of sustainable development, which makes sovereign-level ESG evidence relevant for capital allocation and development-finance debates. These findings support the idea that sovereign ESG indicators are priced by investors, at least in some fixed-income and country-risk settings.

Emerging and developing markets offer a strong setting for this question. These markets often face sharper capital-flow reversals, higher sensitivity to global interest rates, exchange-rate pressures, commodity shocks, and political uncertainty. Corporate ownership structures and disclosure practices also differ across markets, which affects the availability and comparability of ESG information (De La Cruz et al., 2019). In such environments, governance indicators such as rule of law, control of corruption, regulatory quality, and political stability may influence market resilience more directly than environmental indicators. Environmental and social variables may still matter, but their effects may operate over longer horizons or through development-level channels that require careful controls.

The main research gap is therefore specific: open sovereign ESG indicators have not been widely tested as predictors of equity-market resilience in emerging and developing economies using transparent, reproducible data. This article addresses that gap by combining open country-year ESG indicators with market-return and volatility outcomes.

3 Materials and Methods

3.1 Data Sources and Sample Construction

The study uses only open or publicly accessible data sources. The core ESG dataset is the World Bank Sovereign ESG Data Portal, which provides country-level indicators across environmental, social, and governance pillars (World Bank, 2024). Governance indicators are supplemented by the World Bank Worldwide Governance Indicators. Market outcomes and macroeconomic controls are drawn from World Bank World Development Indicators and Global Financial Development indicators, accessed through the World Bank Indicators API (World Bank, 2026). Global risk controls are drawn from FRED, including U.S. interest rates, the VIX, the emerging-market dollar index, WTI oil prices, and SOFR. Fama-French Emerging Markets factor files are included as a benchmark source for factor-model context, consistent with the use of multifactor models in international and emerging-market equity research (Fama and French, 2015, 2017; Mosoeu and Kodongo, 2022).

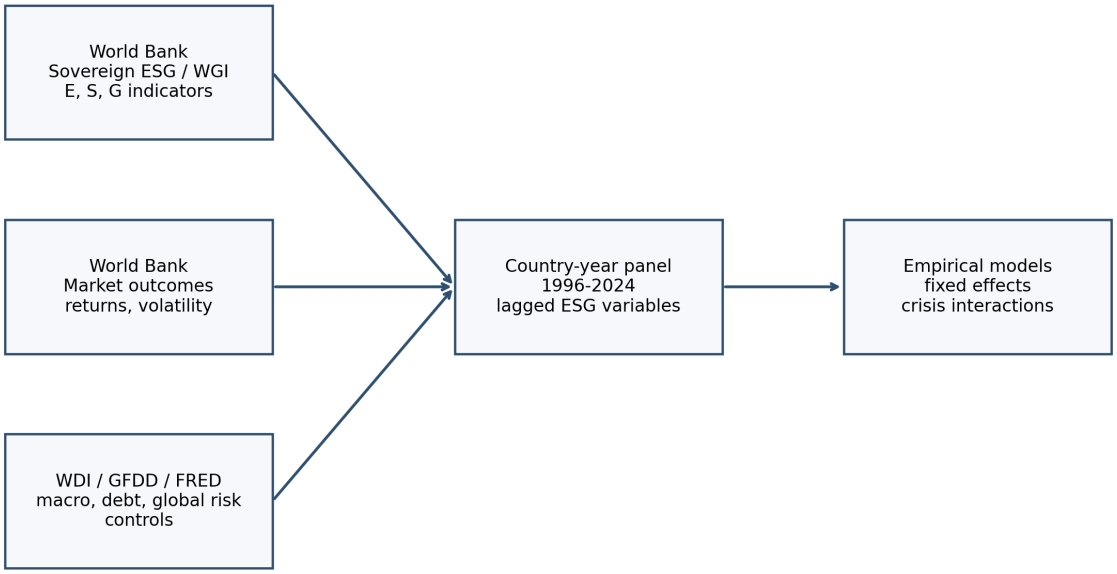
The main panel is constructed at the country-year level. The analysis sample excludes World Bank aggregate regions and high-income economies, creating an open-data proxy for emerging and developing markets. The main sample period begins in 1996 because governance indicators are available from that point and extends through the most recent available observations in the downloaded data. Because market outcome variables have more limited coverage than macroeconomic and ESG variables, the empirical analysis reports coverage explicitly and treats missingness as a material feature of the research design.

Table 1. Data sources used in the study

Source	Frequency	Role in article	Main variables
World Bank Sovereign ESG Data Portal	Annual	Core sovereign ESG indicators	Environmental, social, and governance variables
Worldwide Governance Indicators	Annual	Governance pillar	Rule of law, corruption control, political stability
World Development Indicators	Annual	Macro controls	GDP growth, inflation, exchange rate, current account
Global Financial Development Database	Annual	Market outcomes	Stock-market return and stock-price volatility
FRED	Daily/monthly	Global risk controls	VIX, U.S. rates, EM dollar index, WTI, SOFR
Kenneth French Data Library	Monthly	Factor benchmark context	Emerging-market factors and portfolios

Figure 1. Open-data research design

The article uses reproducible public datasets to link sovereign ESG indicators with market-resilience outcomes.



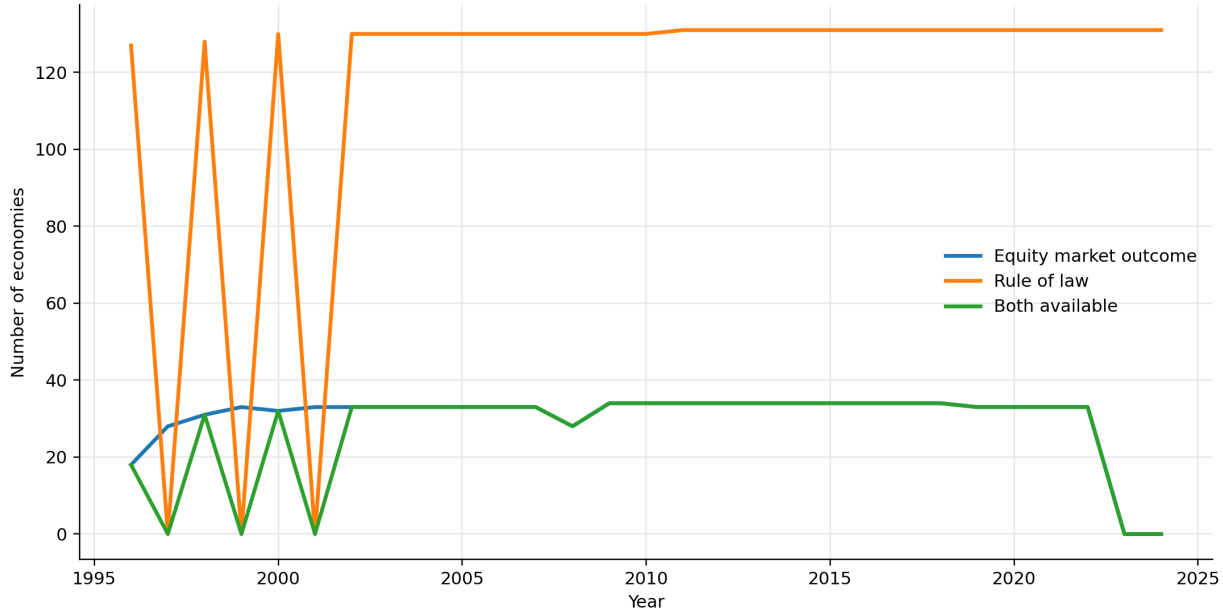
3.2 Market Outcomes and Resilience Variables

The primary outcome variable is the annual percentage change in S&P Global Equity Indices, reported by the World Bank as CM.MKT.INDX.ZG. This variable provides a country-level market-return proxy that can be aligned with annual sovereign ESG data. The second return proxy is GFDD.OM.02, stock market return, year-on-year. The main risk proxy is GFDD.SM.01, stock price volatility. These outcomes are not perfect substitutes for investable total-return indices, but they are reproducible and suitable for an open-data country-panel study.

The article treats resilience as a multidimensional concept. In the first stage, resilience is proxied by lower stock-price volatility and less severe crisis-year losses. Additional extensions can add measures such as downside deviation, crisis beta, recovery speed, and maximum drawdown if daily or monthly investable index data are incorporated.

The descriptive evidence below shows that market outcome coverage is materially lower than ESG coverage. This is expected because not all emerging and developing economies have liquid stock markets or long historical equity-index series.

Figure 2. Country-year data coverage



3.3 Sovereign ESG Variables and Controls

Governance variables are central to the article because they have strong theoretical relevance for emerging-market financial risk. The governance pillar includes rule of law, control of corruption, political stability, government effectiveness, regulatory quality, and voice and accountability. These indicators capture institutional reliability and are expected to be associated with lower risk, lower volatility, and stronger investor confidence.

Environmental indicators include greenhouse gas emissions per capita, PM2.5 exposure, renewable energy consumption, water stress, heat index exposure, and climate-related risk indicators. These variables are relevant to long-term transition and physical risk. Their short-run relationship with annual stock returns may be weaker than governance variables, but they are important for a comprehensive ESG framework.

Social indicators include access to electricity, safely managed drinking water, life expectancy, adult literacy, women in parliament, labor-force participation, and income inequality. Social indicators may proxy human development and social stability; however, they may also overlap with income level, so macroeconomic controls and robustness checks are necessary.

Macroeconomic and debt controls include GDP growth, inflation, real interest rate, exchange rate, current account balance, trade openness, reserves, external debt, and debt service. These controls are essential because sovereign ESG scores may partly reflect a country's development level rather than an independent resilience channel.

Table 2. Core variable groups

Group	Indicators	Expected role
Market outcomes	CM.MKT.INDX.ZG; GFDD.OM.02; GFDD.SM.01	Return and volatility measures
Governance ESG	Rule of law; corruption control; political stability; regulatory quality	Institutional resilience
Environmental ESG	GHG emissions; PM2.5; renewables; water stress; heat/SPEI	Long-run physical and transition risk
Social ESG	Electricity; water; life expectancy; literacy; gender representation; Gini	Social stability and development
Macro controls	GDP growth; inflation; exchange rate; current account; trade	Business-cycle adjustment
Debt controls	External debt/GNI; debt service/exports	Sovereign vulnerability
Global controls	VIX; U.S. rates; EM dollar index; WTI	Global risk environment

3.4 Empirical Strategy

$$\text{MarketOutcome}_{i,t} = \alpha_i + \delta_t + \beta \text{ESG}_{i,t-1} + \gamma \text{Controls}_{i,t-1} + \varepsilon_{i,t}$$

$$\text{MarketOutcome}_{i,t} = \alpha_i + \delta_t + \beta_1 \text{ESG}_{i,t-1} + \beta_2 \text{ESG}_{i,t-1} \times Crisis_t + \gamma \text{Controls}_{i,t-1} + \varepsilon_{i,t}$$

The empirical strategy follows a staged design. First, descriptive statistics and figures establish data coverage, distributional properties, and observed relationships. Second, the article compares high- and low-governance country groups during crisis years. Third, the econometric stage estimates fixed-effects panel regressions using lagged ESG variables.

The baseline model is:

$$\text{MarketOutcome}_{i,t} = \alpha_i + \delta_t + \beta \text{ESG}_{i,t-1} + \gamma \text{Controls}_{i,t-1} + \varepsilon_{i,t}$$

where i indexes countries and t indexes years. MarketOutcome(i,t) is either annual equity-index return or stock-price volatility. ESG(i,t-1) is a lagged sovereign ESG variable or pillar score. Controls(i,t-1) includes lagged macroeconomic and debt controls. Country fixed effects absorb time-invariant country characteristics, and year fixed effects absorb common global shocks.

To test whether ESG matters more during stress periods, the article uses crisis interaction models:

$$\text{MarketOutcome}_{i,t} = \alpha_i + \delta_t + \beta_1 \text{ESG}_{i,t-1} + \beta_2 \text{ESG}_{i,t-1} \times \text{Crisis}_t + \gamma \text{Controls}_{i,t-1} + \varepsilon_{i,t}$$

The crisis indicator includes 2008-2009, 2020, and 2022. These years represent the global financial crisis, the COVID-19 shock, and the global inflation/monetary-tightening shock following the pandemic and Russia-Ukraine war period.

Robustness checks should estimate standard errors clustered by country, apply winsorization to extreme financial variables, and test whether results remain stable when governance, environmental, and social pillars are entered separately.

4 Results

4.1 Descriptive Statistics

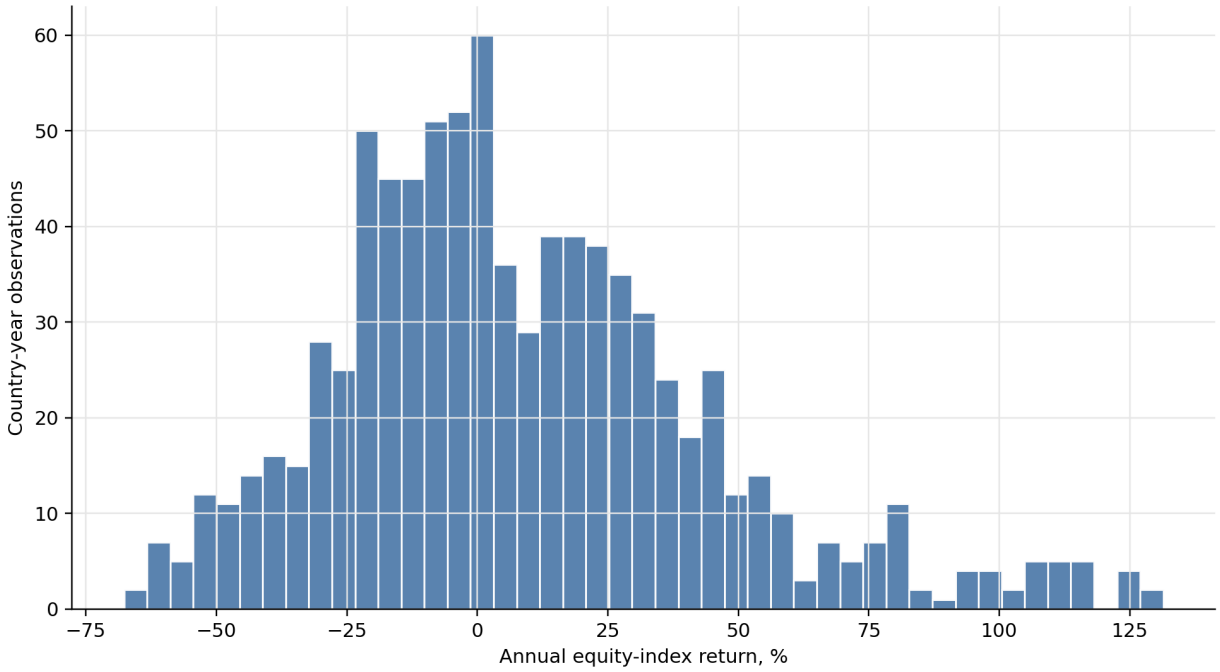
Table 3 presents descriptive statistics for the main variables in the analysis sample. The market-return variables have fewer observations than the ESG and macroeconomic variables, which confirms that coverage limitations should be discussed openly. The annual equity-index return variable has extreme values, which supports the use of winsorization or robust regression in the econometric analysis. Governance variables are centered below zero in the non-high-income sample, consistent with the sample's emerging and developing market orientation.

Table 3. Descriptive statistics for selected variables

Variable	N	Mean	SD	Median	Min	Max
Equity index return	873	10.00	50.15	1.90	-83.79	912.28
Stock market return	801	60.22	922.37	6.58	-65.00	22422.99
Stock price volatility	803	21.34	15.11	18.32	1.97	163.66
Rule of law	3389	-0.58	0.69	-0.62	-2.51	1.37
Control of corruption	3353	-0.57	0.62	-0.61	-2.06	1.47
Political stability	3368	-0.48	0.91	-0.41	-3.05	1.59
GDP growth	3684	3.95	6.76	4.14	-50.34	149.97
Inflation	3323	11.00	76.62	4.99	-16.86	4145.11
Current account balance	3174	-3.99	15.02	-3.76	-148.00	311.75
External debt	3281	57.91	56.24	45.02	1.15	1106.18
Debt service	3043	14.48	13.66	10.73	0.00	134.80

The distribution of annual equity-index returns is visibly non-normal and contains crisis-related downside observations as well as extreme positive rebounds. This distributional structure is typical in emerging-market equity data and reinforces the need for robust estimation.

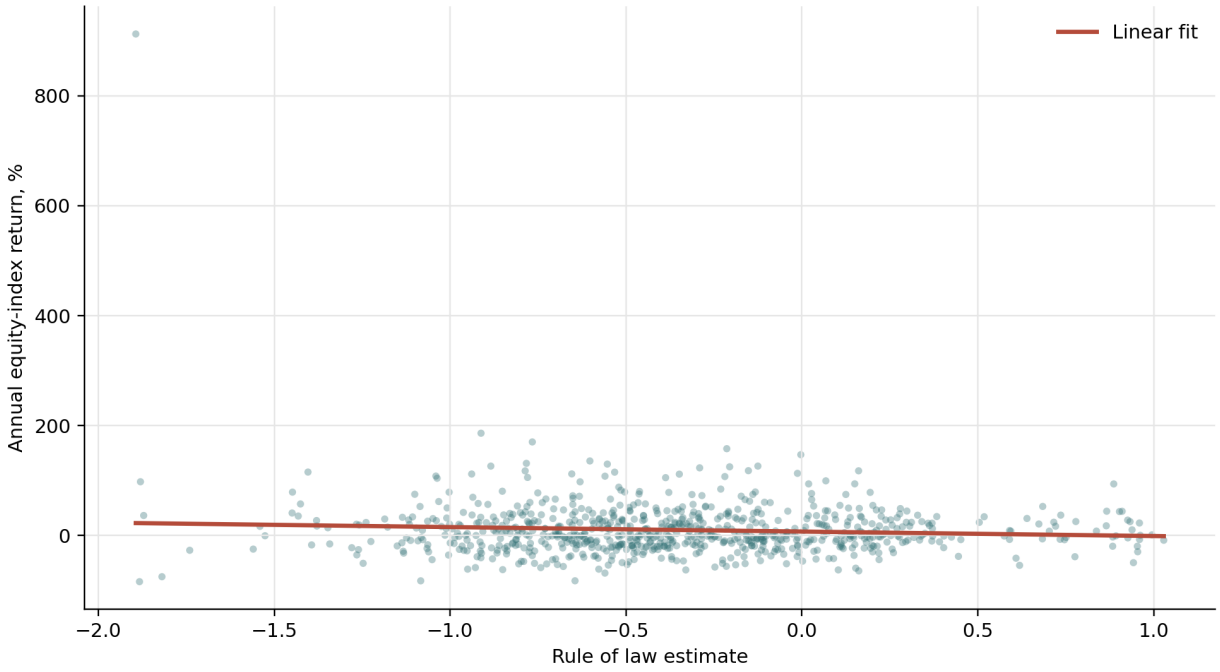
Figure 3. Distribution of annual equity-index returns



4.2 Governance and Market Outcomes

Figure 4 provides a scatter plot between rule of law and annual equity-index returns. The relationship is not visually strong, which is consistent with the idea that ESG indicators should not be presented as a simple return-enhancing factor. A stronger theoretical expectation is that governance affects volatility, downside risk, and the severity of shocks rather than average annual returns.

Figure 4. Rule of law and annual equity-index returns

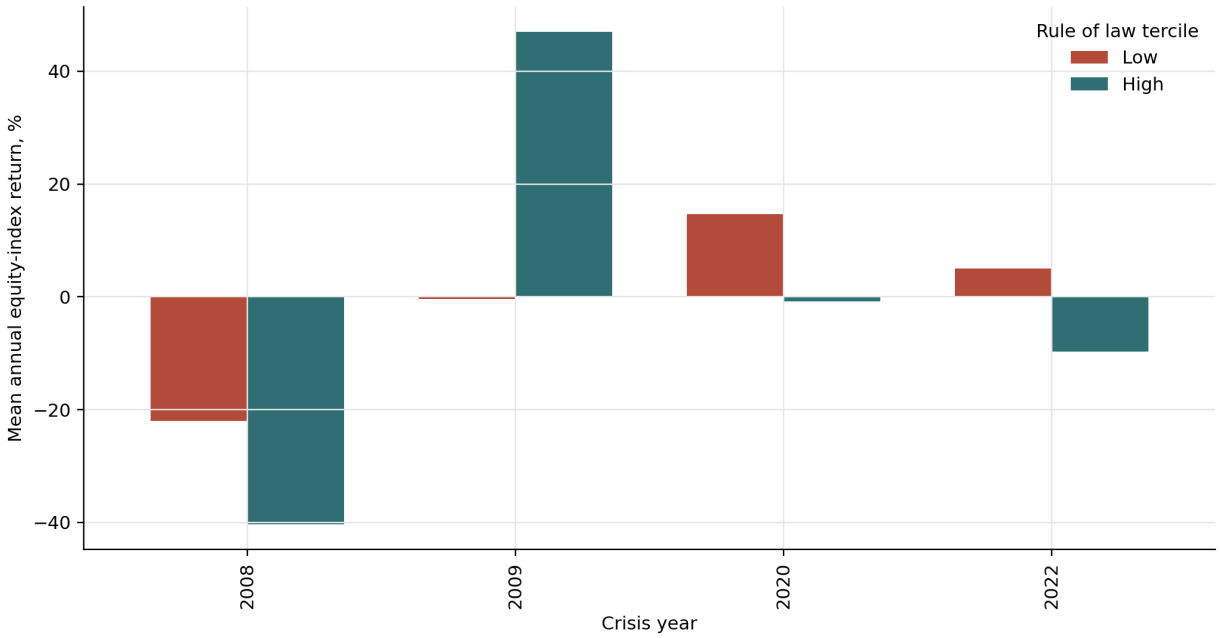


The crisis-year comparison provides an additional descriptive view. Countries are sorted into governance terciles within each crisis year, and average equity-index returns are compared across low- and high-rule-of-law groups. The results are mixed across years, indicating that a simple high-versus-low comparison is not sufficient. This supports the need for fixed-effects regression and macroeconomic controls.

Table 4. Crisis-year comparison by rule-of-law tercile

Year	Rule-of-law group	N	Mean return	Median return	Mean volatility
2008	Low	3	-22.02	-16.94	20.95
2008	Middle	12	-45.43	-49.87	25.46
2008	High	13	-40.36	-43.66	22.48
2009	Low	5	-0.40	-10.71	25.87
2009	Middle	14	53.79	51.37	29.86
2009	High	15	46.99	44.22	25.57
2020	Low	3	14.65	23.55	32.32
2020	Middle	15	-4.83	-3.34	19.69
2020	High	15	-0.83	-8.19	19.30
2022	Low	4	5.00	-8.43	NA
2022	Middle	16	-14.58	-20.70	NA
2022	High	13	-9.68	-7.15	NA

Figure 5. Crisis-year returns by governance tercile



4.3 Volatility and Correlation Patterns

The clearest pattern appears in the relationship between governance and stock-price volatility. The correlation map indicates a negative association between rule of law and stock-price volatility, and a similar negative association between control of corruption and volatility. This is consistent with the resilience hypothesis: governance may matter less for the level of annual returns and more for the stability of market outcomes.

Figure 6. Stock-price volatility by governance tercile

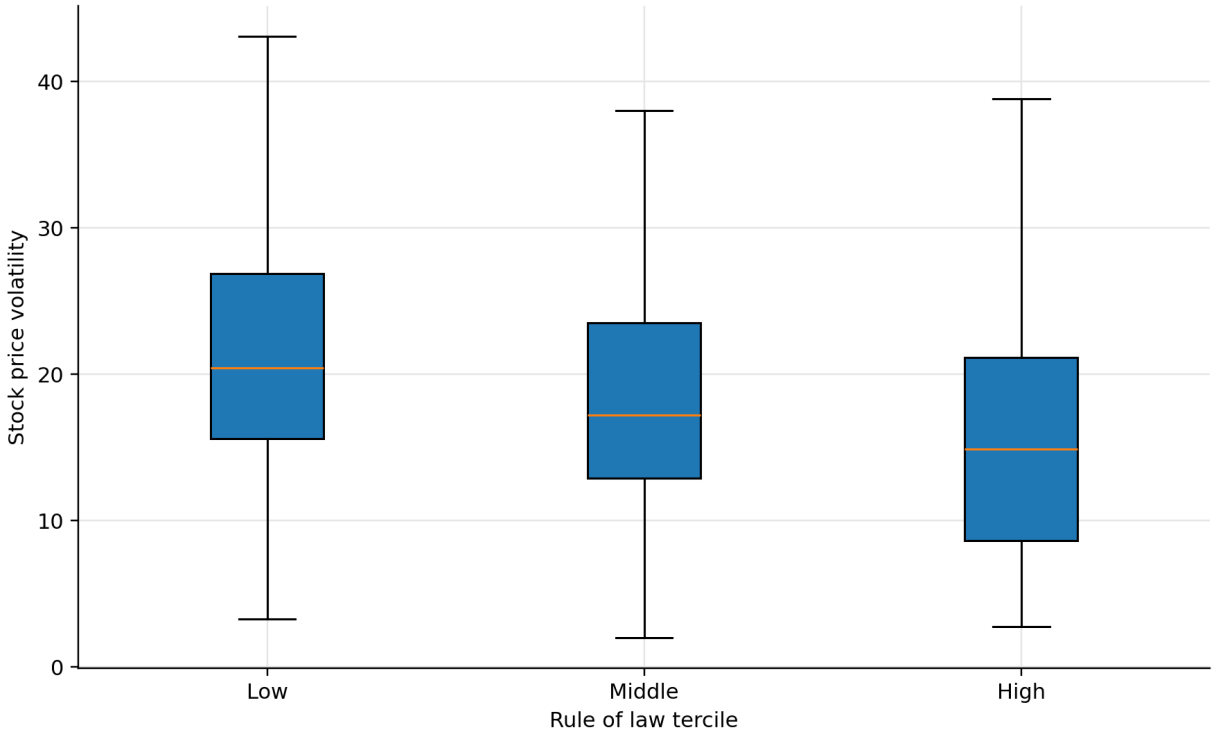
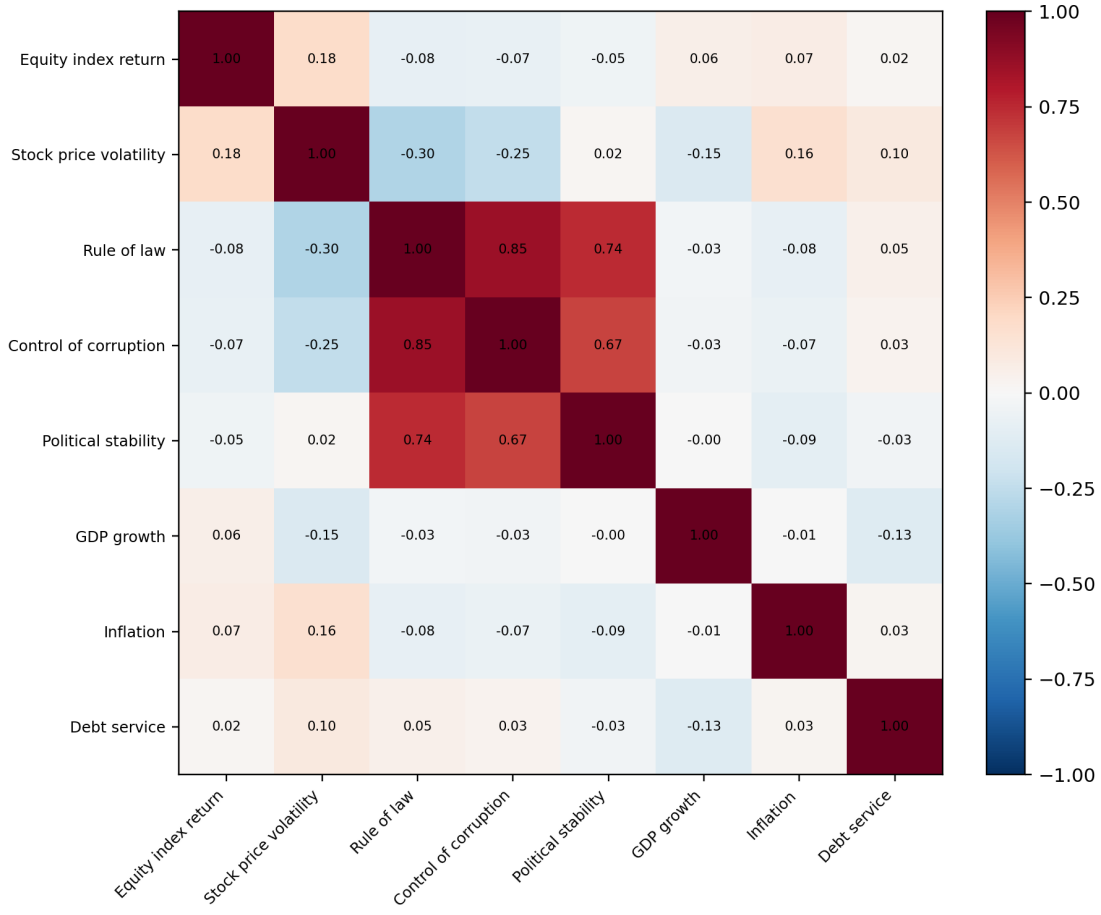


Figure 7. Correlation map for key variables



The year-fixed-effect regressions in Table 5 are included as diagnostic estimates. They use standardized lagged explanatory variables and winsorized dependent variables. They are interpreted as diagnostic associations rather than causal estimates because the available country-year market data contain material missingness and require careful robustness checks. Still, the diagnostic results support the main framing: the governance coefficient is weak for annual return but negative for stock-price volatility.

Table 5. Diagnostic regressions with year fixed effects

Model	Outcome	Term	Coefficient	Std. error	N	Controls
Equity return	Equity index return	Rule of law	-0.81	1.18	721	No
Equity return + controls	Equity index return	Rule of law	-0.38	1.21	629	Yes
Equity return + controls	Equity index return	GDP growth	-0.82	1.59	629	Yes
Equity return + controls	Equity index return	Inflation	5.42	1.31	629	Yes
Equity return + controls	Equity index return	Debt service	0.76	1.32	629	Yes
Stock volatility	Stock price volatility	Rule of law	-3.71	0.40	714	No
Stock volatility + controls	Stock price volatility	Rule of law	-2.09	0.37	639	Yes
Stock volatility + controls	Stock price volatility	GDP growth	1.75	0.47	639	Yes
Stock volatility + controls	Stock price volatility	Inflation	2.75	0.39	639	Yes
Stock volatility + controls	Stock price volatility	Debt service	0.91	0.39	639	Yes

These diagnostics support the article's central hypothesis: sovereign governance indicators are more likely to explain market stability than market return. This distinction is central to avoiding exaggerated ESG claims.

5 Discussion

The evidence suggests that a sovereign ESG framework can be useful for studying portfolio resilience in emerging and developing markets. The strongest theoretical and descriptive support appears for governance indicators. This is reasonable because rule of law, corruption control, political stability, and regulatory quality directly affect investor confidence, capital-flow stability, contract enforcement, and the credibility of economic policy.

The relationship between ESG and annual returns appears weaker and more unstable. This does not undermine the article. On the contrary, it strengthens the argument that ESG should be evaluated as a risk and resilience signal rather than as a universal return premium. In emerging markets, annual equity returns are affected by many forces that may dominate ESG indicators in the short run: currency shocks, commodity prices, global rates, domestic inflation, political events, liquidity constraints, and capital-flow cycles.

The article also shows why open-data design matters. Proprietary ESG ratings can be useful, but they limit reproducibility. Open data make it possible to inspect variables, rerun models, change definitions, and test robustness. For scholarly purposes, this transparency improves credibility. For practical investment analysis, it allows analysts to build country-risk screens without relying entirely on commercial databases.

Several limitations qualify the interpretation. First, the country-year design cannot capture intrayear market stress. If daily or monthly investable index data are incorporated, the analysis can include drawdown, downside deviation, and recovery-speed measures. Second, non-high-income World Bank economies are only a proxy for emerging and developing markets; robustness checks using MSCI or IMF classifications would strengthen the sample definition. Third, ESG indicators are correlated with income and institutional development, so the empirical design must control carefully for macroeconomic and structural differences. Fourth, some variables contain extreme values, requiring winsorization and sensitivity analysis.

Despite these limitations, the research design is scientifically defensible. It follows the empirical-finance structure of published ESG market-risk research, uses transparent data, distinguishes descriptive evidence from causal claims, and frames ESG as a resilience concept.

6 Conclusion

This article develops an open-data framework for analyzing whether sovereign ESG indicators improve the assessment of portfolio resilience in emerging and developing markets. The study uses World Bank ESG, governance, market, macroeconomic, and debt indicators, supplemented by FRED global risk controls and Fama-French emerging-market factor files. The evidence indicates that governance indicators are more closely related to stock-price volatility than to annual return levels.

The central conclusion is therefore conservative: sovereign ESG should not be presented as a guaranteed source of excess return. A more scientifically credible claim is that selected ESG indicators, especially governance indicators, may help identify countries with lower market instability and stronger resilience during stress periods. This claim is relevant for portfolio construction, country allocation, sovereign risk analysis, and sustainable finance policy.

The paper is positioned as an empirical contribution to the literature on ESG integration, emerging-market risk, and open-data portfolio analytics. Its main contribution is not a claim that ESG mechanically increases returns, but a transparent framework for evaluating whether sovereign ESG signals help explain market stability and resilience.

Declarations

Data Availability Statement. The data used in this study are publicly available from the World Bank Sovereign ESG Data Portal, World Bank API, FRED, and Kenneth R. French Data Library. The processed dataset and generated figures are stored in the project folder accompanying this manuscript.

Author Contributions. Maria Azatyan is the sole author. CRediT roles: Conceptualization, Methodology, Data Curation, Formal Analysis, Investigation, Visualization, Writing - Original Manuscript, Writing - Review and Editing, Validation, and Project Administration.

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Generative AI Statement. Generative AI tools were used to assist with structuring, language editing, data organization, and visualization. The author remains responsible for the final content, verification of sources, empirical interpretation, and scholarly submission.

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