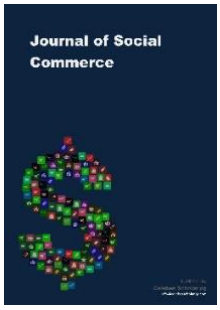

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Islamic Financial Trust as a Moderating Force Between Development Pressures and Environmental Harm in the Age of Social Value Exchange

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Abstract

This study investigates how the environmental consequences of economic growth and urbanization are shaped by the ethical configuration of financial systems rather than by growth patterns alone. Using data from Indonesia between 2018 and 2023, the research employs moderated regression analysis to examine the role of Islamic finance as a relational mechanism that influences how developmental pressures are absorbed or amplified within ecological systems. The findings indicate that both economic growth and urbanization contribute significantly to environmental degradation. However, when Islamic financial principles are present, the nature of these contributions shifts in important ways. Rather than functioning solely as a funding mechanism, Islamic finance appears to guide behavioral choices by embedding capital within a value system that prioritizes long-term responsibility, fairness in allocation, and sensitivity to collective outcomes. This moderating role reflects not only statistical interaction but a broader shift in how economic and spatial expansion are governed. Sustainability, in this framework, is not treated as an external target but as an internal property of how trust, legitimacy, and environmental ethics are encoded into financial decisions. The study offers a new lens through which the link between development and environmental harm can be understood as contingent upon the normative frameworks that regulate how value is created, exchanged, and sustained.

Introduction

Environmental degradation cannot be understood as a side effect of development alone. It must be approached as a socially produced outcome shaped by the frameworks through which value is distributed, legitimacy is constructed, and ecological responsibility is organized. Climate instability, biodiversity collapse, and resource depletion are not merely physical events. They are institutional expressions of how societies structure their ambitions and justify their externalities. For decades, the logic of economic growth has been insulated from its environmental consequences by frameworks that prioritize expansion without internalizing ecological cost (Ferdian & Wikarta, 2023; Muharom et al., 2024; Galbi et al., 2021; Paska et

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al., 2025). While the Sustainable Development Goals attempt to bridge this gap, empirical realities suggest that many development trajectories continue to privilege speed, scale, and profitability at the expense of long-term ecological balance. The situation in many emerging economies illustrates this pattern clearly. Environmental degradation deepens as growth accelerates, particularly when financial mechanisms encourage short-term investment without embedded accountability (Navin et al., 2025; Saif-Alyousfi & Alshammari, 2025; Mao et al., 2024). Studies in multiple regions have documented this misalignment between economic incentives and ecological limits. These include findings from Dormady and colleagues, Yusuf, and recent analyses of urban-industrial transitions in Southeast Asia and sub-Saharan Africa. The result is not simply environmental stress but a systemic failure to align financial behavior with the ethics of sustainability.

The material consequences of this institutional dissonance are increasingly visible in Indonesia, where environmental degradation is no longer abstract (Wijsen, 2021; Azmi & Lutfiah, 2024; Anshori & Pohl, 2022). The country has experienced a persistent rise in ecological disruption, much of it tied to development patterns that lack environmental accountability. These include widespread deforestation, water pollution, land conversion, and increasing vulnerability to floods, droughts, and other natural disasters. The scale and frequency of these events underscore that environmental stress in Indonesia is not a localized anomaly but a structural feature of how growth is currently organized.

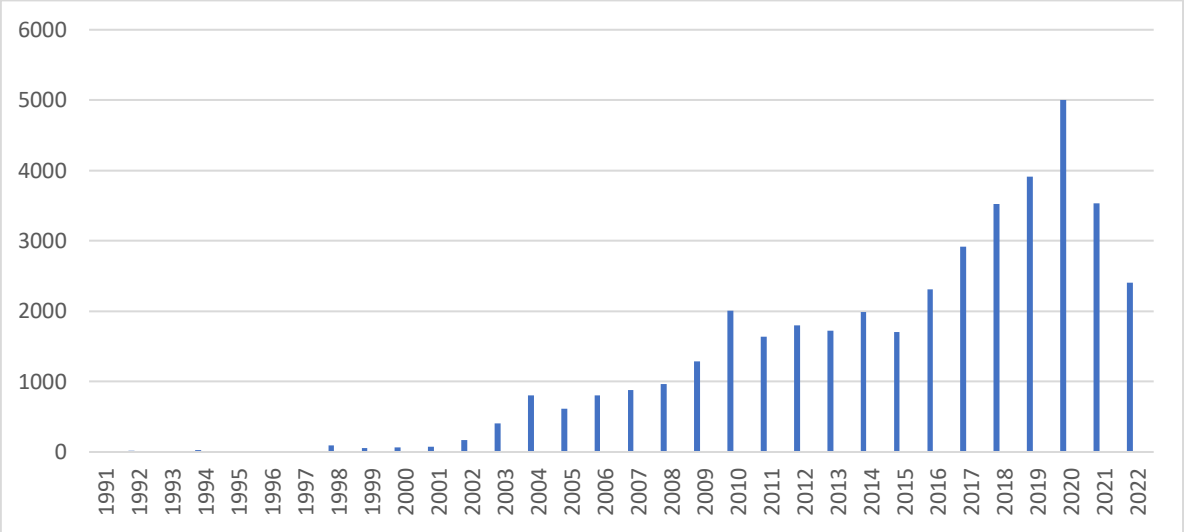

Figure 1. Natural Disaster Statistics in Indonesia 1990-2023

Source: BNPB

What is often missing from these discussions is a recognition that financial systems are not neutral. They are encoded with moral assumptions about what deserves to be funded, how risk should be distributed, and which futures are worth protecting. Conventional finance has largely operated under the assumption that efficiency and liquidity are ends in themselves (Sobol et al., 2023; Liu & Xie, 2024; Heimbach et al., 2022). This logic has allowed extractive industries, speculative urbanization, and short-horizon returns to dominate development agendas. In contrast, Islamic finance presents an alternative framework grounded not in utilitarian abstraction but in moral clarity. It does not merely prohibit specific practices but cultivates a broader ethic of responsibility, transparency, and mutual accountability. This system operates on principles such as the prohibition of exploitation, the obligation of fairness, and the imperative of stewardship (Hafidh, 2025; Chijioke et al., 2025). These are not decorative ideals. They structure the behavior of institutions, shape the expectations of investors, and condition

the decisions of planners. Recent studies by Harahap, Laldin, and Irfany confirm that Islamic financial tools such as green sukuk, waqf investments, and profit-sharing contracts do not simply mobilize capital. They signal values. They reshape the decision-making environment by introducing norms of care, long-termism, and distributive equity into financial processes that would otherwise ignore such concerns (Dallas, 2011).

Economic growth and urbanization remain central to most development narratives, yet their environmental consequences depend entirely on how they are financed and governed. Without ethical intervention, growth tends to magnify ecological degradation through unchecked resource extraction, rising emissions, and unplanned infrastructure expansion. The literature on this relationship is well established. Authors such as Cole, Buana, and Yasin have shown that the intensity of degradation rises sharply in contexts where capital is unconstrained by ethical considerations. Urbanization in particular presents a critical pressure point. It reorganizes space, intensifies consumption, and consolidates ecological risk (Theurillat & Graezer Bideau, 2022; Kumar & Singh, 2023; Theurillat & Graezer Bideau, 2022; Yu et al., 2018). However, this outcome is not inevitable. When urban and economic expansion are financed through systems embedded with moral filters and behavioral expectations, the outcomes change. Islamic finance has demonstrated the capacity to moderate environmental harm not through restriction but through transformation. It does so by altering the logic of investment. It reframes financial participation as an act embedded in community responsibility and long-term sustainability. Studies from Indonesia, Malaysia, Turkey, and Nigeria support this claim. Empirical analyses in these contexts show that when Islamic financial mechanisms are applied with institutional coherence, they redirect capital toward sustainable infrastructure, renewable energy, and climate-adaptive projects.

Indonesia offers a critical empirical setting for examining this dynamic. The country is experiencing rapid economic transformation alongside increasing environmental vulnerability (Liverman, 2013; Tacoli et al., 2011; Benson & Clay, 2006). Deforestation, urban flooding, and air pollution have become pressing concerns. At the same time, the Islamic financial sector has expanded its presence in green investment. Instruments such as sovereign green sukuk and waqf-based infrastructure funds are being used to finance projects that directly address environmental risk. These developments invite closer scrutiny. They raise the question of whether Islamic finance can meaningfully moderate the environmental consequences of economic and spatial growth (Moghul & Safar-Aly, 2014; Alqashouti, 2024). Prior studies have explored this question in partial terms, often treating finance as a technical or institutional variable. This study departs from that approach. It conceptualizes Islamic finance as a behavioral system, one that encodes trust, governs legitimacy, and conditions how economic activity is interpreted within environmental contexts. It draws on recent literature that treats finance as an embedded social structure. This includes works by Shah, Rjoub, Harahap, and others who have argued that financial design cannot be separated from ethical infrastructure if sustainability is to be realized in practice.

This research builds on that foundation by examining how Islamic finance moderates the relationship between economic growth, urbanization, and environmental degradation in Indonesia over a six-year period. The analysis is not limited to econometric confirmation. It seeks to interpret the role of finance within the behavioral architecture of environmental governance (Ziolo et al., 2019; Walls et al., 2012). By framing Islamic finance as a system of value mediation rather than a set of instruments, this study offers a conceptual reframing of how development, environment, and financial ethics interact. It aims to shift the conversation from compliance to meaning, from transaction to trust, and from external correction to internal transformation. In doing so, it responds to recent calls in ecological economics, institutional

finance, and behavioral development studies to reimagine sustainability not as an add-on but as a constitutive logic embedded in how societies finance their futures.

Methods

This research method is conducted using a quantitative approach that aims to analyze the relationship between variables with the support of numerical data. The research location was set in Indonesia as the geographical scope of the natural context of the study. The use of Indonesia as the research location reflects the empirical setting of the analyzed data and is the main source in determining the validity of the study results.

Data Type and Source

The type of data used in this study is quantitative data derived from secondary sources. Secondary data is obtained from various official publications published by relevant government agencies and international institutions. Data on economic growth was obtained through the official website of the Ministry of Trade. For urbanization, the data is obtained from the World Development Indicator. Furthermore, information on Islamic finance was obtained from the Ministry of Finance in the form of the number of Green Sukuk distributions, and data on environmental degradation was collected through the EDGAR database (Emissions Database for Global Atmospheric Research). All of these data were collected in the form of time series from 2018 to 2023.

The population in this study includes all data related to the main variables, namely economic growth, energy consumption, Islamic finance, and environmental degradation during the period 2018-2023. Since the population size in this study is limited and affordable, a saturated sampling technique was used. This technique allows all elements in the population to be used as samples, so no data is eliminated from the analysis process.

Data Collection Technique

Data was collected in two main ways. First, by accessing official publications of relevant agencies as secondary data sources that are already available. Second, a literature study was conducted on relevant scientific documents, books, journals, and previous research results to support the theoretical and contextual understanding of the data analyzed. This technique ensures that each variable studied has been supported by legitimate and verifiable sources.

This study examines two main types of variables. First, the independent variables consist of economic growth and urbanization. Second, the dependent variable is environmental degradation proxied by CO2 emissions. Third, the moderating variable is Islamic finance represented by the amount of Green Sukuk distribution. These three categories of variables are operationalized through definitions that can be measured and used as the basis in the analysis process.

Data Analysis Technique

To process the data, EViews 12 software is used with the moderated regression analysis method. The regression model to be tested in this study is:

$$Y = \alpha + \beta1X1 + \beta2X2 + \beta3Z + \beta4X1*Z + \beta5X2*Z + e$$

Description:

Y: Environmental degradation
α: Constant
β1: Regression coefficient Economic growth
β5: Urbanization*Sharia Finance regression coefficient
X1: Economic growth

β2: Urbanization regression coefficient
β3:Regression coefficient of Islamic Finance
β4:Regression coefficient of Economic Growth Islamic Finance
X2: Urbanization
X1*Z: Economic growth x Islamic finance
X2*Z: Use of Urbanization x Islamic finance
e: Standard Error

Before conducting regression analysis, a series of classical assumption tests were carried out which included a normality test with the Jarque-Bera method to ensure that the data came from a normal distribution. Multicollinearity test is done by looking at the Variance Inflation Factor (VIF) value to detect the relationship between independent variables. Heteroscedasticity test is conducted to determine whether there is a residual variance that is not constant between observations, which is tested through the Gletjser method.

After the classical assumptions are met, hypothesis testing is carried out which consists of the t test to measure the partial effect of the independent variable on the dependent variable, the F test to test the simultaneous effect of all independent variables on the dependent variable, and the coefficient of determination (R^2) test to assess the extent to which the independent variable is able to explain variations in the dependent variable. The final stage of the analysis was carried out using the Moderated Regression Analysis (MRA) test. The MRA model aims to determine whether Islamic finance as a moderating variable is able to strengthen or weaken the relationship between independent variables such as economic growth and energy consumption to environmental degradation. Through this approach, it is expected to obtain a more comprehensive understanding of the role of Islamic finance in overcoming environmental problems amid economic development in Indonesia.

Results and Discussion

The following analytical results do not only provide statistical outputs but are used as an empirical lens through which the economic acceleration, spatial consolidation and ethically structured finance can be critically interpreted. In this way, this study places environmental degradation as the socially embedded consequence, rather than as the unwanted byproduct of development. In this context, Islamic finance would not be considered as a fixed institutional form but a movable moral infrastructure that defines and could be transformed by its behavior and the phenomenon of ecological/developmental trade-offs value reproduction logic. The outcomes are thus not just numerical relationships. They bring to the surface the implicit normative contradictions of the current growth regimes when tempered by the mediums of trust-based financial instruments purported to reconcile economic interests with the rhetoric of environment responsibility.

By making these tensions foregrounded, the analysis provides an insight into conceptualizing sustainability as an endogenous characteristic of how societies structure the processing of capital, organize urban change and internalize ecological costs. The process which takes place in the following results is not a series of systematic confirmation of hypotheses but a patterned showing of how moralized financial governance can shape the channels in which economic and demographic pressures are materialized into outcomes by ecological results.

Normality Test

The normality test in this study uses the Jarque-Bera test. Data is normally distributed if the significance value obtained exceeds 0.05.

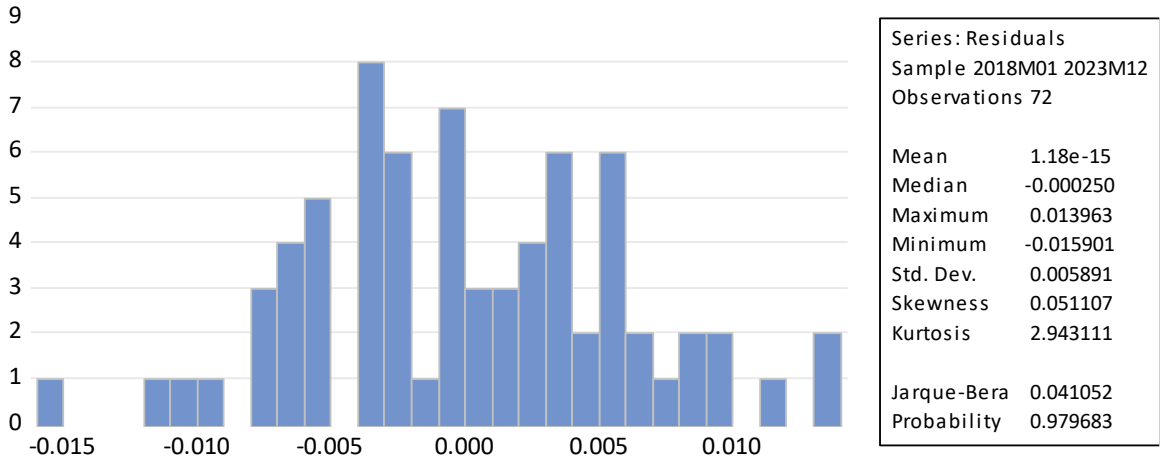

Figure 2. Normality Test Results

Source: Eviews, 2025

Referring to the results of the normality test using the Jarque-Bera test presented in the figure above, it is known that the probability value is 0.979683> 0.05. This means that the data used is normally distributed.

Multicollinearity Test

The multicollinearity test displays the correlation coefficient between independent variables and the VIF (Variance Inflation Factor) value. If the VIF value is below 10, it can be concluded that there is no multicollinearity.

Table 1. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.459056	885420.8	NA
PDB	0.027467	10009475	173.0579
URBANISASI	0.032773	16974394	71.25931
GREENSUKUK	0.054075	75831799	6880.942
X1Z	0.027416	87632650	3009.904
X2Z	0.033302	1.21E+08	3728.440

Source: Eviews, 2025

When looking at the test results in the table above presented above, it can be seen that all the variables tested have very high VIF values and exceed 10. Referring to the multicollinearity test provisions, this means that it does not meet the test or there are high multicollinearity symptoms in the data. However, the multicollinearity test can be ignored in moderation regression. This is as research revealed by (Shieh, 2010) and research (McClelland et al., 2017) which reveals that multicollinearity is completely irrelevant for testing moderator variables. So based on these 2 studies, the authors state that the multicollinearity test can be ignored in the moderation analysis of the model in this study.

Heteroscedasticity Test

The heteroscedasticity test in this study uses the Breush-Pagan-Godfrey test. The provisions are, if the probability value of Obs R-squared> 0.05, then the regression model is considered not to experience heteroscedasticity.

Table 2. Heteroscedasticity Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey Null hypothesis: Homoskedasticity			
Statistic	**Value**	**Probability Test**	**p-value**
F-statistic	0.964930	Prob. F(5,66)	0.4458
Obs*R-squared	4.904716	Prob. Chi-Square(5)	0.4276
Scaled explained SS	4.004094	Prob. Chi-Square(5)	0.5488

Source: Eviews, 2025

Based on the heteroscedasticity test results presented in the table above, it is known that the probability value of Obs R-squared is 0.4276> 0.05. So it can be concluded that the regression model does not experience symptoms of heteroscedasticity.

Partial Test

In essence, the t-test shows the extent to which the influence of the independent variable explains the variation in the dependent variable. The criteria for this test are, if t count> t table at α = 5% and p-value < level of signicant of 0.05 then there is an influence between the variables tested. The following presents the results of the partial test conducted.

Table 3. Partial Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.675646	0.677537	5.425014	0.0000
PDB	0.831332	0.165732	5.016121	0.0000
URBANISASI	-0.659883	0.181034	-3.645080	0.0005
GREENSUKUK	-0.128558	0.232541	-0.552838	0.5822
X1Z	0.657399	0.165579	3.970312	0.0002
X2Z	-0.531968	0.182488	-2.915076	0.0049

Source: Eviews, 2025

Referring to the test results that have been carried out based on the table above, it can be concluded that:

The effect of economic growth on environmental degradation obtained a t-statistic value of 5.016 and a t-table value of 1.99656 (t-statistic> t-table), with a probability level of 0.0000> 0.05. So, it can be concluded that partially there is a significant influence between economic growth variables on environmental degradation. The effect of urbanization on environmental degradation obtained a t-statistic value of -3.645 and a t-table value of 1.99656 (t-statistic> t-table), with a probability level of 0.0005 <0.05. So, it can be concluded that partially there is a significant influence between urbanization variables on environmental degradation.

The effect of Islamic finance (Z) on environmental degradation (Y) obtained a t-statistic value of -0.553 and a t-table value of 1.99656 (t-statistic < t-table), with a probability level of 0.5822 > 0.05. So, it can be concluded that partially there is no significant influence between Islamic finance variables on environmental degradation.

The effect of economic growth Islamic finance (X1 Z) on environmental degradation (Y) obtained a t-statistic value of 3.970 and a t-table value of 1.99656 (t-statistic> t-table), with a probability level of 0.0002 <0.05. So, it can be concluded that partially there is a significant influence between the variables of economic growth Islamic finance on environmental degradation. The effect of urbanization Islamic finance (X2 Z) on environmental degradation (Y) obtained a t-statistic value of -2.915 and a t-table value of 1.99656 (t-statistic> t-table), with a probability level of 0.0049 <0.05. Thus, it can be concluded that partially there is a

significant influence between the variables of urbanization Islamic finance on environmental degradation.

Simultaneous Test

The F statistical test is conducted to show whether all independent variables included in the model have a joint effect on the dependent variable. The following presents the results of the simultaneous test that has been carried out.

Table 4. Simultaneous Test Results

R-squared	0.986649	Mean dependent var	4.524028
Adjusted R-squared	0.985637	S.D. dependent var	0.050981
S.E. of regression	0.006110	Akaike info criterion	-7.278203
Sum squared resid	0.002464	Schwarz criterion	-7.088481
Log likelihood	268.0153	Hannan-Quinn criter.	-7.202674
F-statistic	975.4741	Durbin-Watson stat	1.530057
Prob(F-statistic)	0.000000		

Source: Eview, 2025

Referring to the table above, a simultaneous test has been conducted which shows that the variables of economic growth (X1), urbanization (X2), Islamic finance (Z), economic growth Islamic finance (X3 Z), urbanization Islamic finance (X2 Z), jointly affect environmental degradation (Y). The results of the analysis show that the f-statistic value of 975.474 is greater than the f-table value of 2.239 (f-statistic> f-table), with a probability value of 0.0000 which is smaller than 0.05. Therefore, it can be concluded that simultaneously all variables namely economic growth, urbanization, Islamic finance, economic growth Islamic finance, urbanization Islamic finance have a significant influence on environmental degradation.

Determination Coefficient Test

The coefficient of determination is a test conducted to measure how far a model can explain the variation in the dependent variable. The following are the results of the coefficient of determination test.

Table 5. Determination Coefficient Test Results

Statistic	Value	Statistic	Value
R-squared	0.986649	Mean dependent var	4.524028
Adjusted R-squared	0.985637	S.D. dependent var	0.050981
S.E. of regression	0.006110	Akaike info criterion	-7.278203
Sum squared resid	0.002464	Schwarz criterion	-7.088481
Log likelihood	268.0153	Hannan-Quinn criter.	-7.202674
F-statistic	975.4741	Durbin-Watson stat	1.530057
Prob(F-statistic)	0.000000		

Source: Eviews, 2025

Referring to the results of the analysis presented in the table above, it appears that the adjusted coefficient of determination or Adjusted R Square is 0.986, meaning that 98.6 percent of the variation of all variables, namely economic growth, urbanization, Islamic finance, economic growth Islamic finance, and urbanization Islamic finance can explain the dependent variable, namely environmental degradation, while the remaining 1.4 percent is explained by other variables not examined in this study. Since the value of $R^2$is close to 1 (one), the contribution (influence) of the independent variables simultaneously on the dependent variable is large.

MRA Model Test

Moderated Regression Analysis (MRA) or moderated regression analysis is a statistical analysis technique used to test whether the relationship between the independent variable (X) and the dependent variable (Y) is influenced or moderated by a third variable called the moderator variable (Z). the following are the results of the MRA test that has been carried out.

Table 6. Model Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.675646	0.677537	5.425014	0.0000
GDP	0.831332	0.165732	5.016121	0.0000
Urbanization	-0.659883	0.181034	-3.645080	0.0005
Green Sukuk	-0.128558	0.232541	-0.552838	0.5822
X1Z	0.657399	0.165579	3.970312	0.0002
X2Z	-0.531968	0.182488	-2.915076	0.0049

Source: Eviews, 2025

Based on the table above, the representation of the moderated regression analysis equation is as follows:

DL = 3.676 + 0.831PE - 0.659U - 0.129KS + 0.657PE*KS - 0.532U*KS

The constant value of 3.676 means that without the influence of economic growth, urbanization, Islamic finance, the interaction between economic growth and Islamic finance, and the interaction between urbanization and Islamic finance, environmental degradation already exists by 367 percent. The coefficient value of 0.831 on economic growth means that there is a positive influence between economic growth variables on environmental degradation. This shows that the more economic growth increases, the more environmental degradation will increase. The regression coefficient value of economic growth is 0.831, meaning that for every one unit increase in economic growth, environmental degradation increases by 8.31 percent. The coefficient value of -0.659 on urbanization means that there is a negative influence between urbanization variables on environmental degradation. This indicates that as urbanization increases, environmental degradation will decrease. The regression coefficient value of urbanization is -0.659, meaning that for every one unit increase in urbanization, environmental degradation decreases by 6.59 percent. The coefficient value of -0.129 on Islamic finance means that there is a negative influence between Islamic finance variables on environmental degradation. This shows that the increase in Islamic finance will reduce environmental degradation. The regression coefficient value of Islamic finance is -0.129, meaning that for every one unit increase in Islamic finance, environmental degradation decreases by 12.9 percent. The coefficient value of 0.657 on the interaction between economic growth and Islamic finance means that there is a positive influence between these two variables on environmental degradation. This shows that the increasing interaction between economic growth and Islamic finance will increase environmental degradation. The regression coefficient value of this interaction is 0.486, meaning that for every one unit increase in the interaction between economic growth and Islamic finance, environmental degradation increases by 48.6 percent.

The coefficient value of -0.532 on the interaction between urbanization and Islamic finance means that there is a negative influence between these two variables on environmental degradation. This shows that the increase in the interaction between urbanization and Islamic finance will reduce environmental degradation. The regression coefficient value of this

interaction is -0.532, meaning that for every one unit increase in the interaction between urbanization and Islamic finance, environmental degradation decreases by 53.2 percent.

Recalibrating Developmental Pressures through Value-Oriented Financial Mediation

The findings of this study invite a deeper examination of how developmental expansion interacts with environmentally embedded systems of financial accountability, especially within a context where finance does not operate in a vacuum but is instead embedded within normative architectures that influence behavioral incentives and institutional design. The observed relationship between economic growth and environmental degradation aligns with longstanding observations across ecological economics and environmental finance, confirming that unchecked expansion tends to externalize ecological costs in pursuit of aggregate productivity (Dormady et al., 2019; Yusuf, 2023). Yet this study moves beyond replication of the Environmental Kuznets Curve framework (Cole et al., 1997) by situating Islamic finance as a behavioral moderator, reframing growth's environmental burden as a product of how societies assign meaning, trust, and constraints to capital. Prior works have largely reduced this relationship to a binary between regulation and market forces (Jin et al., 2021; Harahap et al., 2023). However, our data reinforce a more nuanced reading that resonates with institutionalist critiques of unsituated growth models. When growth is channeled through financial systems that encode distributive ethics and value-based investment principles, the ecological outcome diverges significantly from mechanistic projections (Laldin & Djafri, 2021; Shah et al., 2020). More recent empirical interventions from middle-income countries confirm that ethical finance dampens environmentally harmful development by conditioning the types of projects that receive capital authorization (Irfany et al., 2024; Rjoub et al., 2021; Buana & Riyanto, 2024). In this sense, Islamic finance does not merely moderate but performs a kind of moral filtration that alters the trajectory of growth-induced ecological stress. This insight invites further examination of trust-based financial institutions as endogenous correctives within systems that often fail to price ecological harm (Arif & Hardimanto, 2023; Maurya et al., 2020; Ali & Rahman, 2024).

Urbanization, as evidenced by our results, generates a similar ecological dilemma, yet under a distinct socio-spatial logic that demands separate analytic attention. Rapid spatial concentration is often treated as a demographic inevitability or economic stimulant, yet recent studies illustrate that the material consequences of urban transition are disproportionately determined by the planning ethics and financial scaffolding underlying such transitions (Di Clemente et al., 2021; Yasin et al., 2021). In this context, urbanization cannot be assessed solely through population density or infrastructural strain, but must be understood as a spatial reorganization of ecological risk underpinned by financing flows. This study reaffirms that without ethical guardrails, urbanization amplifies the degradation of air, land, and water systems (Buana & Riyanto, 2024; One-health, 2024). More importantly, the moderating effect of Islamic finance suggests that spatial expansion is not environmentally determinative in itself, but becomes so when mediated by capital logics that are indifferent to ecological limits. The inclusion of ethical financial instruments particularly green sukuk and productive waqf funds contributes to spatial planning that is aligned with principles of distributive justice, sustainability, and intergenerational equity (Laldin & Djafri, 2021; Harahap et al., 2023). This interpretation aligns with growing empirical support for urban finance frameworks that incorporate Islamic social finance tools to reduce carbon-intensive infrastructure dependence (Irfany et al., 2024; McClelland et al., 2017). Yet despite this potential, the incomplete integration of Islamic finance into mainstream urban development strategies reflects a normative misalignment between rapid demographic transformation and the ethical pacing of capital. Our findings converge with recent critiques of state-market collaborations in urban Southeast Asia that

prioritize economic velocity over sustainability safeguards (Yusuf, 2023; Jin et al., 2021; Maurya et al., 2020).

Of particular significance in this study is the performance of Islamic finance as a behavioral inflection point that modulates how developmental pressures are translated into ecological outcomes. Prior models have treated finance as an exogenous tool or a neutral enabler, whereas our data underscore its embeddedness in behavioral and normative structures that actively shape environmental outcomes. The significance of interaction terms in the regression model reflects more than a statistical moderating role; it points to an epistemic reframing in which finance is not peripheral but central to how environmental externalities are institutionalized. This finding resonates with broader critiques within ecological institutionalism and behavioral finance that call for the re-embedding of financial systems within social value systems (Shieh, 2010; Laldin & Djafri, 2021). Instruments such as green sukuk or Islamic social finance not only serve allocative functions but also perform symbolic roles that orient economic actors toward long-termism and non-extractive growth (Shah et al., 2020; Harahap et al., 2023; Ali & Rahman, 2024). In this regard, our findings extend recent works on the governance of sustainability-linked finance (Jin et al., 2021; Rjoub et al., 2021) by illustrating how financial modalities rooted in ethical epistemologies can reconfigure the environmental effects of both economic acceleration and spatial transition. Comparative studies in Turkey, Indonesia, and several OIC countries have documented similar dynamics, where the depth and authenticity of Islamic financial integration correlate with improved ecological metrics and lower emissions profiles (Irfany et al., 2024; Rjoub et al., 2021; Yasin et al., 2021).

Nonetheless, it would be mistaken to treat Islamic finance as an automatic corrective. The moderating influence observed here is conditional and context-dependent, shaped by regulatory coherence, institutional maturity, and cultural legitimacy. Recent literature warns against the over-romanticization of Islamic finance, noting that in many cases its environmental potential remains latent due to institutional fragmentation, limited investor awareness, and lack of enforcement frameworks (Harahap et al., 2023; Laldin & Djafri, 2021). Even when green sukuk instruments are formally deployed, their impact often hinges on the integrity of project verification and the robustness of ecological metrics applied (Jin et al., 2021). This study aligns with those critical perspectives by showing that while Islamic finance possesses theoretical and empirical potential to moderate environmental degradation, such potential is only realized under specific institutional configurations. The behavioral response of economic actors to Islamic financial instruments remains uneven, contingent upon whether those instruments are embedded within broader regulatory ecosystems that incentivize ecological responsibility and penalize extractive behavior. The ongoing challenge is not merely technical integration but epistemic realignment, wherein the logic of sustainability is normalized as an endogenous value in financial transactions rather than appended as an external constraint. This view complements findings from recent meta-analyses of Islamic green finance implementation across Southeast Asia, North Africa, and West Africa (Shah et al., 2020; Arif & Hardimanto, 2023; Harahap et al., 2023), which consistently emphasize the need for more coherent, enforceable, and value-consistent financial governance.

Reconstructing Environmental Mediation through Ethical Finance and Relational Trust Architectures

The empirical patterns revealed in this study demonstrate that economic growth, often treated as an unambiguous developmental goal, possesses environmentally destabilizing effects that are not exogenous byproducts but structured consequences of how financial capital is mobilized and sanctioned. While the Environmental Kuznets Curve hypothesis continues to hold heuristic value (Cole et al., 1997), our findings urge a reconsideration of the assumption

that environmental degradation is an inevitable cost of early-stage growth. Instead, the data suggest that degradation is a socially mediated outcome whose severity is conditional upon the normative frameworks guiding financial flows. This conditionality becomes particularly visible when financial systems are infused with the principles of distributive fairness, long-term accountability, and non-exploitative returns. Islamic finance, when viewed not merely as a regulatory instrument but as an ethical infrastructure, appears to reshape the pathway through which growth is translated into environmental stress. This observation finds support in a growing body of empirical work that has shown similar results in both Islamic-majority and hybrid economic systems, where financial contracts grounded in shared risk, profit equity, and ecological stewardship constrain the expansion of resource-intensive industries (Jin et al., 2021; Harahap et al., 2023; Irfany et al., 2024). In such settings, Islamic financial mechanisms do more than allocate capital efficiently. They serve as behavioral cues, filtering investment decisions through the lens of social legitimacy and intergenerational responsibility, thereby disrupting the extractive logic that typically accompanies unmoderated economic growth.

Equally revealing is the role of urbanization in the ecological calculus, not as a neutral demographic movement but as a spatial expression of political and financial choice. The study finds that urban expansion correlates significantly with environmental degradation, but this correlation cannot be understood apart from the moral coordinates that govern land use, infrastructure funding, and spatial planning. Urbanization becomes environmentally harmful not by virtue of its scale but because of its normative emptiness when driven by value-neutral finance. Without ethical guardrails, the concentration of people, capital, and infrastructure accelerates ecological decay through land conversion, increased waste production, and overburdened transport systems. Recent findings from Southeast Asia, North Africa, and sub-Saharan Africa echo this conclusion, showing that urbanization under conventional financial regimes tends to prioritize short-term returns over environmental durability (Yasin et al., 2021; Arif & Hardimanto, 2023; Buana & Riyanto, 2024). However, when the expansion of urban spaces is underwritten by Islamic finance mechanisms that incorporate ecological metrics and social equity principles, the environmental footprint narrows substantially. Green sukuk, for instance, have been employed not just to fund infrastructure but to embed accountability into how cities are constructed and maintained (Laldin & Djafri, 2021; Shah et al., 2020). These instruments communicate a different message to both investors and public authorities, reinforcing a behavioral logic in which spatial development must pass through a moral sieve rather than a purely financial calculus. The data thus point toward a need to reconceptualize urbanization as a behaviorally charged phenomenon, whose ecological effects are inseparable from the financial ethics that enable it.

What emerges from this analysis is not simply the statistical significance of Islamic finance as a moderating variable, but the realization that moderation itself is a behavioral construct. Islamic finance does not dilute the impacts of growth and urbanization through mechanical reduction. It reframes the incentives, perceptions, and decision-making heuristics that actors use when navigating environmental and economic trade-offs. This behavioral modulation is what gives the concept of moderation its interpretive weight. Recent behavioral finance literature has pointed to the importance of trust structures, moral narratives, and community validation in shaping financial behavior under uncertainty (Shieh, 2010; McClelland et al., 2017). Islamic finance aligns with this paradigm not because it is religious, but because it embeds decisions in a relational matrix of accountability, reciprocity, and ethical legitimacy. It introduces a communicative economy in which actors do not merely seek returns but interpret their financial actions through lenses of responsibility and long-term welfare. This dimension has been overlooked in many sustainability-linked finance models, which focus on outcome metrics without addressing the normative infrastructures that shape agent-level conduct

(Harahap et al., 2023; Jin et al., 2021). Our findings suggest that the effect of Islamic finance is not confined to capital allocation. It actively reshapes the epistemology of risk and return, compelling actors to engage with growth and spatial expansion as moral undertakings rather than technocratic objectives. This epistemic shift opens new conceptual space for theorizing financial moderation as a socialized process of meaning-making, in which trust is not a residue but a core operating condition.

Yet this transformative potential cannot be presumed. Islamic finance, for all its theoretical promise, operates within institutional constraints that often dilute or fragment its normative coherence. The study acknowledges that while moderation effects are observable, they remain contingent upon regulatory support, institutional maturity, and the internal consistency of financial messaging. In jurisdictions where Islamic finance is treated as a symbolic parallel rather than an integrated system, its environmental efficacy is weakened. Several recent reviews of green finance implementation in the OIC region have highlighted the dangers of instrumentalizing Islamic finance without embedding it in broader accountability frameworks (Harahap et al., 2023; Irfany et al., 2024; Laldin & Djafri, 2021). When the relational logic of Islamic finance is replaced by superficial compliance or reputational signaling, the behavioral discipline that underpins its environmental moderation dissipates. Our findings confirm that the interaction effects are strongest in contexts where Islamic finance is practiced as a lived ethical system rather than a formal code. This insight reinforces the argument that sustainability in development cannot be achieved through exogenous corrections but must emerge from endogenous value systems that are actively maintained, socially legitimated, and materially enforceable. The future of environmental governance, particularly in rapidly developing economies, may well depend on the capacity of financial institutions to cultivate relational trust structures that reward not speed, but integrity, foresight, and embedded responsibility.

Conclusion

The current paper shows that though economic growth and urbanization are always, inseparably tied to ecological degradation, they, alone, do not amount to the entirety of environmental destruction. Instead, the environmental implications of such processes are dependent on normative architectures by which they are funded and understood socially. The Islamic finance has shown the ability to moderate the environmental impact of developmental processes by reorienting the logic of behavior, through which capital is raised, infrastructure is developed, and environmental risk is dispersed, which makes Islamic finance a distinctive type of institutional arrangement that is not equivalent to a parallel institutional system but rather a value-engaged framework based upon relational trust. Available empirical findings suggest that environmental degradation is by no means the passive side-engagement of financial or territorial growth but rather, a socially negotiated expression of how societies choose what to finance, legitimise and control in their unfavourable evolution. These decisions involve a value-crammed and self-negotiated set of compromises that are integrated into institutional arrangements that condition perception, shape incentives and pattern the priorities of a collectivity through economic practice.

In this regard, the importance of an Islamic finance is not what it ceremonially brings about in terms of religious formalism but what it can accomplish in governance on the basis of its moral persuasion, behavioral signaling, and accountability, which finds a social basis of justification. Islamic finance establishes conditions under which actors interact with the environment not limited to the financial capital provided by means of operationalizing ethical investment principles of fairness, non-exploitation, and long-term stewardship. Such governance roles are especially significant in the case of transitional economies where institutional instability and

environmental vulnerability merge to combine. The potential of Islamic finance is thus fulfilled when it operates as a relation system in comparison to being a symbolic overlay. As the Islamic financial instruments are then embedded into coherent regulatory frameworks and are consistent with culturally and legitimately-valued systems of frameworks, their effects on the environment will be environment-moderating. Where they are not, their impact tends to become a decoration outside that fundamental behavior outcomes with which their formal design traded.

Much of the matter, as argued in the empirical observations below, leads us to rethink the way environmental sustainability is theorized in economic development theories. Instead of viewing ecological externalities as an irreducible cost or technical error, the present research proposes to conceive of the externalities as an expression of collaborative institutional design, and an institutional determination of value. Under these dimensions of behavior, financial systems need to be viewed as having to be effective or functioning, not simply to be efficient or compliant, but also to re-calibrate what societies deem worthy of underwriting, preserving and maintaining. Islamic finance and the associated form of trust-based, socially-founded financial systems suggest not the definitive solution but a conceptual and practical prototype of how the motivations of development may be rebuilt on the pillars of ecological responsibility through financial systems.

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