Evaluating Green Investment Performance in Morocco: An Empirical Study on Policy, Environmental, and Economic Drivers

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Abstract

This study investigates the performance of green investments in Morocco, focusing on their financial returns, environmental impact, and social contributions within the framework of the country's sustainability and economic development goals. Drawing on Sustainable Finance Theory and the Triple Bottom Line (TBL) framework, the research examines five key influencing factors: government policies and incentives, investment challenges, environmental impact, investor confidence, and job creation. Primary data were collected through a structured survey administered to 225 participants, including policymakers, investors, and industry experts involved in green investment projects. The survey utilized a Likert scale format to assess perceptions of investment effectiveness and barriers. Quantitative methods, including descriptive statistics, multiple regression, and correlation analysis, were employed to analyze the relationships between these variables and green investment performance. The results reveal that environmental impact ($\beta = 0.181$, $p < 0.01$), job creation and economic impact ($\beta = 0.155$, $p < 0.01$), and investment factors ($\beta = 0.119$, $p < 0.01$) significantly enhance investment performance. In contrast, investor confidence has a negative effect ($\beta = -0.322$, $p < 0.01$), and government policies do not show a statistically significant impact. The model explains 74.7% of the variation in green investment performance ($R^2 = 0.747$). These findings underscore the need for stronger and more consistent policy implementation, targeted investment incentives, and a greater focus on job-generating sustainable projects. The study offers practical insights for policymakers and stakeholders aiming to advance Morocco's green transition and promote sustainable development through more effective green investment strategies.

Keywords: green investment; sustainable development; environment; Morocco

1. Introduction

The global investment landscape is undergoing a fundamental transformation driven by increasing awareness of the need for environmental sustainability and climate resilience (Belcaid, 2024; Hossain, 2025; Ikram & Sadki, 2024). As concerns about climate change, resource depletion, and environmental degradation intensify, both public and private sector actors are increasingly shifting capital toward environmentally sustainable ventures (Choukri et al., 2025; El Youssfi et al., 2025; Sabry, 2025). In this context, green investments, defined as investments in projects and technologies that deliver positive environmental outcomes—such as renewable energy, waste reduction, sustainable agriculture, and eco-friendly infrastructure—have gained prominence as a cornerstone of sustainable development (Hossain & Nur, 2024; El Hebabi & Hossain, 2025; Jiang & Ma, 2025; Rehman et al., 2025). Globally, green finance is no longer a niche market but a growing priority for investors, financial institutions, and governments (Hossain et al., 2024; Yu & Zhang, 2025). According to recent estimates,

the global market for green bonds and climate-aligned investments has expanded rapidly, signaling growing investor appetite for sustainable financial products (Rizzitello et al., 2025). However, the effectiveness of these investments in achieving both financial returns and sustainability goals varies significantly across regions, especially in developing countries, where economic, institutional, and regulatory challenges remain prevalent (Cao et al., 2025).

In this global context, Morocco stands out as a compelling case for the study of green investment performance. As a lower-middle-income country with ambitious sustainability targets, Morocco has strategically positioned itself as a leader in the green transition across the African continent and the broader Mediterranean region (Matias et al., 2025; Oubouch et al., 2024). The country has made significant strides in renewable energy development, particularly in solar and wind energy, supported by strong political will, international partnerships, and targeted policy initiatives (El-Maaroufi et al., 2025a; Slimani et al., 2024). Morocco's Integrated Energy Strategy and the 2030 Renewable Energy Target, aiming to generate 52% of its electricity from renewable sources, reflect a deep national commitment to decarbonization and green growth (El Hafdaoui et al., 2025; El Hassani et al., 2024). This commitment is further reinforced by Morocco's adherence to international agreements such as the Paris Climate Accord and the Sustainable Development Goals (SDGs), under which the nation has pledged to reduce its greenhouse gas emissions while promoting inclusive economic development (Sahu et al., 2025; Shi et al., 2025). These efforts have been bolstered by substantial investments in green infrastructure projects, including the Noor Ouarzazate Solar Complex, one of the largest of its kind in the world, and other flagship initiatives that aim to transition the country toward a low-carbon economy (Hossain, 2025).

Despite these advances, there remains a significant gap in empirical research evaluating the actual performance of green investments in Morocco, particularly regarding their financial viability, environmental outcomes, and socio-economic contributions (Cai et al., 2025). While green finance is increasingly viewed as a catalyst for sustainable development, a comprehensive understanding of how these investments perform in real-world conditions, especially in emerging economies like Morocco, is still lacking (Chang et al., 2025; Elaouzy & El Fadar, 2025; Oualid et al., 2024). Moreover, most existing studies focus on policy aspirations or environmental targets rather than quantifying investment performance through data-driven analysis (El Hebabi & Hossain, 2025).

Therefore, the central research problem this paper addresses is the limited empirical knowledge surrounding the actual impact and effectiveness of green investments in Morocco (El Hamidy & Errami, 2025; Miftah et al., 2018; Safhi et al., 2024). The performance of such investments, measured not only by financial returns but also by their contributions to environmental sustainability and socio-economic development, is critical to informing both public policy and private investment strategies (Ghezloun et al., 2014; Zennati et al., 2025). The purpose of this study is to evaluate the performance of green investments in Morocco by analyzing their financial returns, assessing their environmental and social impacts, and examining the institutional and regulatory context in which these investments occur (Chen et al., 2025; Funke & Terasa, 2025). To achieve this, the study utilizes a survey-based quantitative approach to gather insights from stakeholders directly involved in green investment activities, including investors, policymakers, and sectoral experts (Elaouzy & El Fadar, 2025; Guemouria et al., 2025).

The objectives are: to evaluate the financial performance of green investments in Morocco over the past decade, identifying trends in return on investment, cost efficiency, and sector-specific profitability in areas such as renewable energy, sustainable agriculture, and waste management (Ahrabous et al., 2025; Bammou et al., 2024); to assess the environmental and social impacts of these investments, with a focus on key indicators such as emissions reductions, energy savings, biodiversity preservation, and job creation in local communities; to explore the role of government policies, incentives, and international cooperation in shaping the development and success of green investments, including the impact of regulatory frameworks, fiscal incentives, and partnerships with global institutions (El Asli & Azeroual, 2025; Gao & Hu, 2025); and to propose actionable recommendations for improving the overall effectiveness and sustainability of green investment initiatives in Morocco (El Hammouti et al., 2023; Ikram & Nahdi, 2025). This includes strategies to enhance investor

confidence, remove investment barriers, and optimize environmental returns (Aamiri et al., 2024; Lambarki et al., 2024).

By addressing these objectives, this paper aims to contribute to both academic and practical discourses on sustainable finance in developing economies. The findings are intended to inform future investment strategies and policymaking efforts that seek to scale green finance as a tool for achieving sustainable development in Morocco and similar emerging markets.

2. Literature Review

Numerous studies emphasize the critical role of government policies in promoting green investments, particularly in Morocco, where authorities have introduced favorable regulatory frameworks such as tax incentives, subsidies, and renewable energy mandates (Mavlutova et al., 2025; Rehman et al., 2025). However, the effectiveness of these policies is often undermined by inconsistent implementation and bureaucratic inefficiencies (A. Chen et al., 2025; Funke & Terasa, 2025). Empirical evidence from stakeholder surveys in Morocco similarly indicates mixed perceptions of policy effectiveness, suggesting that while government initiatives may be necessary to attract green investment, their actual impact remains uneven (Agnaou et al., 2024; Khaldi & Mounir, 2025). In addition to policy-related concerns, green investments in Morocco face several challenges, including inadequate infrastructure, high capital requirements, and political uncertainty (Oubouch et al., 2024). These issues are particularly prevalent in emerging markets, where the investment environment can be volatile and regulatory systems underdeveloped (Rachid et al., 2024; Taouahria, 2024). A persistent skills gap, especially in technical and engineering fields, further limits the growth potential of green sectors. These structural constraints often deter private investors and delay project implementation (Kang et al., 2025; Wolf et al., 2024).

From an environmental standpoint, large-scale projects such as the Noor Solar Complex have demonstrated Morocco's capacity to reduce greenhouse gas emissions and diversify its energy mix. Nonetheless, AfDB (2018) notes that the social dimension, particularly job creation and community development, often receives less attention despite being essential for long-term sustainability (Bourchachen et al., 2025; Najimi et al., 2025). Survey data reflect this gap, as respondents frequently recognize environmental gains but rate the social outcomes less favorably. Investor confidence is another pivotal factor. While Morocco's renewable energy sector attracts attention due to its strategic location and ambitious energy targets, concerns about profitability and long-term returns persist (Robinson et al., 2024). These concerns are consistent with findings from stakeholder surveys that reveal skepticism toward financial returns, especially for capital-intensive ventures (Ghezloun et al., 2014; Tekken & Kropp, 2015). As such, building investor trust through transparency, policy consistency, and performance benchmarks remains critical (El Fartassi et al., 2025; El-Maaroufi et al., 2025b).

2.1. Hypotheses Development

This study draws on the principles of Sustainable Finance Theory (Janan et al., 2025) and the Triple Bottom Line (TBL) (Ahmad et al., 2024; Bø & Flygansvær, 2025) framework to develop hypotheses that explore the relationship between key independent variables and the performance of green investments in Morocco. The model integrates economic, environmental, and social dimensions of investment to provide a holistic understanding of how various factors contribute to success (Baffo et al., 2024; Meo et al., 2025; Yusoff et al., 2025). Each hypothesis is grounded in both theoretical logic and empirical evidence, ensuring that the conceptual framework is both rigorous and practically relevant.

2.1.1. Government Policies and Incentives

Government intervention plays a pivotal role in enabling green investments, especially in developing and emerging economies where private capital may be risk-averse or limited (Rehman et al., 2025). Within the framework of Sustainable Finance Theory, state-led incentives such as tax exemptions, renewable energy subsidies, and public-private partnerships serve as essential mechanisms to internalize externalities, mitigate financial risk, and align private investment objectives with broader environmental and social priorities (Janan

et al., 2025). Regulatory frameworks that establish clear long-term goals, such as Morocco's National Energy Strategy, help create stable market signals that reduce uncertainty for investors and enhance project viability (Sakhraoui et al., 2024). Empirical studies support this theoretical perspective. The World Bank (2020) reports that consistent government incentives in Morocco have stimulated capital inflows into the renewable energy sector. However, other research highlights concerns about bureaucratic inefficiencies and policy inconsistency, which can erode investor confidence (Jiang & Ma, 2025b; Yu, 2025). When policy implementation is effective and transparent, it significantly improves the feasibility, attractiveness, and success rates of green projects. Therefore, the first hypothesis is:

H1: Government policies and incentives have a significant positive effect on green investment performance.

2.1.2. Investment Challenges

Green investments in Morocco, while promising, face a range of operational, institutional, and financial challenges that impede their development (Belcaid, 2024; Ourya et al., 2023). These include high upfront costs, insufficient infrastructure, complex permitting processes, and limited access to green financing mechanisms (Miftah et al., 2018; Oubouch et al., 2024). Such challenges raise the cost of capital, extend project timelines, and increase perceived investment risks, particularly in emerging economies with developing capital markets (Sabry, 2025; Wolf et al., 2024). These risks are directly relevant under the risk-adjusted return lens of Sustainable Finance Theory (Janan et al., 2025), which posits that sustainable investments must deliver acceptable returns given their higher risk exposure (Hossain et al., 2024). Investors in Morocco often cite inconsistent regulatory frameworks, skills shortages, and limited technical capacity as barriers to project implementation (Aït Hamza et al., 2018; Wolf et al., 2024). When such challenges are prevalent, they reduce investment efficiency and limit the scale and scope of green projects (Belcaid, 2024; Sabry, 2025). Thus, overcoming these challenges is essential for unlocking private sector participation and achieving national sustainability targets (El Hassani et al., 2024; Ouchani & Ghennioui, 2025). In line with this, the study hypothesizes:

H2: Investment challenges negatively influence green investment performance.

2.1.3. Environmental Impact

Environmental sustainability is a central tenet of the Triple Bottom Line (TBL) framework, which asserts that organizations and investments should prioritize not only financial returns but also environmental preservation (S. Chen & Kamarudin, 2024; X. Li et al., 2025; Yang & Gou, 2025). Green investments, particularly in renewable energy, waste management, and sustainable agriculture, are designed to produce measurable environmental outcomes such as reductions in carbon emissions, air and water pollution, and fossil fuel dependency (Yusoff et al., 2025). In Morocco, flagship projects like the Noor Ouarzazate Solar Complex exemplify the country's efforts to generate clean energy and contribute to its national goal of sourcing 52% of electricity from renewables by 2030. Empirical findings suggest that when green investments demonstrate clear, quantifiable environmental benefits, they are more likely to attract continued investment, public support, and favorable policy backing (Al-Fayoumi et al., 2025; Funke & Terasa, 2025). The visibility of these environmental outcomes enhances the perceived legitimacy and effectiveness of such investments, reinforcing their long-term sustainability (Baffo et al., 2024; W. Li et al., 2024). Therefore, the hypothesis is:
H3: Environmental impact has a positive effect on green investment performance.

2.1.4. Investor Confidence

Investor confidence represents the degree of trust and optimism investors have regarding the long-term success and profitability of a green project (Daoudi et al., 2022). It is influenced by multiple factors, including macroeconomic stability, policy coherence, market transparency, past performance of similar investments, and access to credible information (Cherian et al., 2025; Sabry, 2025). Within the framework of Sustainable Finance Theory, investor confidence serves as a critical mediator between institutional factors and capital allocation decisions (Kumar et al., 2025; Roshid et al., 2025). High confidence reduces perceived risk and encourages

long-term financial commitment. In Morocco, despite growing global interest in green finance, several studies report that many investors remain cautious due to perceived delays in project implementation, unclear revenue models, and policy reversals (Behera et al., 2025; Rehman et al., 2025; Zhou et al., 2025). This cautious sentiment can stifle innovation and reduce the scale of green investment portfolios. On the other hand, consistent policy frameworks, successful case studies, and regulatory guarantees, such as power purchase agreements (PPAs) in the energy sector, can boost confidence and unlock private capital (Jiang & Ma, 2025b; Kousksou et al., 2015). Thus, the next hypothesis is formulated as:

H4: Investor confidence is positively associated with green investment performance.

2.1.5. Job Creation and Economic Impact

The social pillar of the TBL framework emphasizes the importance of equitable and inclusive economic growth (Amini Alaoui et al., 2024; Ez-zaouy et al., 2025). Green investments are expected to generate quality employment, stimulate rural development, and reduce income inequality through local economic opportunities (Mavlutova et al., 2025; Trivella, 2025). In Morocco, investments in sectors like renewable energy, sustainable agriculture, and eco-tourism have created significant employment opportunities, especially in regions previously marginalized from industrial development (Miftah et al., 2018). Socially beneficial green investments not only improve livelihoods but also build broader stakeholder support, which is vital for long-term project success and political continuity (Cai et al., 2025). Empirical data from survey responses and government reports suggest that job creation is one of the most positively perceived outcomes of green investment, often cited as a key reason for increased political and community backing (Amini Alaoui et al., 2024; Cherian et al., 2025). Projects that contribute visibly to social well-being are more likely to receive subsidies, permits, and local cooperation. Accordingly, the final hypothesis is proposed:

H5: Job creation and economic impact positively influence green investment performance.

2.2. Theoretical Framework and Contribution

The proposed conceptual model for evaluating green investment performance is grounded in Sustainable Finance Theory (Janan et al., 2025) and the Triple Bottom Line (TBL) framework (Andersen et al., 2025; Oppon et al., 2024). Sustainable Finance Theory advocates aligning financial investments with long-term environmental and social objectives, thereby ensuring responsible capital allocation (W. Li et al., 2024; Meo et al., 2025). This perspective is particularly relevant to Morocco, where public and private investments are increasingly directed toward renewable energy, energy efficiency, and low-carbon development (Belhaj et al., 2016; Jiang & Ma, 2025b). The Triple Bottom Line framework complements this approach by asserting that investment success should be measured across three dimensions: economic viability, environmental sustainability, and social equity (Ghezloun et al., 2014; Weir et al., 2022). This integrated perspective is essential for assessing green investment projects, which often deliver benefits that transcend traditional financial metrics (Al-Fayoumi et al., 2025; Trivella, 2025). By combining these frameworks, the proposed model offers a multidimensional lens for evaluating green investments in Morocco. It underscores the importance of considering policy effectiveness, environmental impact, investor sentiment, and socio-economic outcomes when assessing project performance (Bourchachen et al., 2025; Razouqi et al., 2025).

This study contributes to the expanding body of literature on sustainable finance by presenting a comprehensive framework specifically adapted to the context of emerging economies (Soufiene et al., 2024). It enhances the understanding of green investment dynamics by incorporating both enabling factors, such as government support, and inhibiting factors, such as investment barriers (Rizzitello et al., 2025). The research bridges theoretical concepts and empirical evidence through clearly defined hypotheses and statistical analysis, offering a robust foundation for evaluating green investment performance (A. Chen et al., 2025; Gao & Hu, 2025; Kang et al., 2025). Moreover, the study emphasizes the importance of integrating financial returns with non-financial outcomes, particularly environmental and social impacts, in line with the principles of Sustainable Finance Theory and the Triple Bottom Line framework. By doing so, the model offers practical value to policymakers, investors, and development practitioners aiming to improve the effectiveness and

sustainability of green investment strategies in Morocco and comparable settings (Aït Hamza et al., 2018; Sabry, 2025; Sakhraoui et al., 2024). Figure 1 depicts the proposed model.
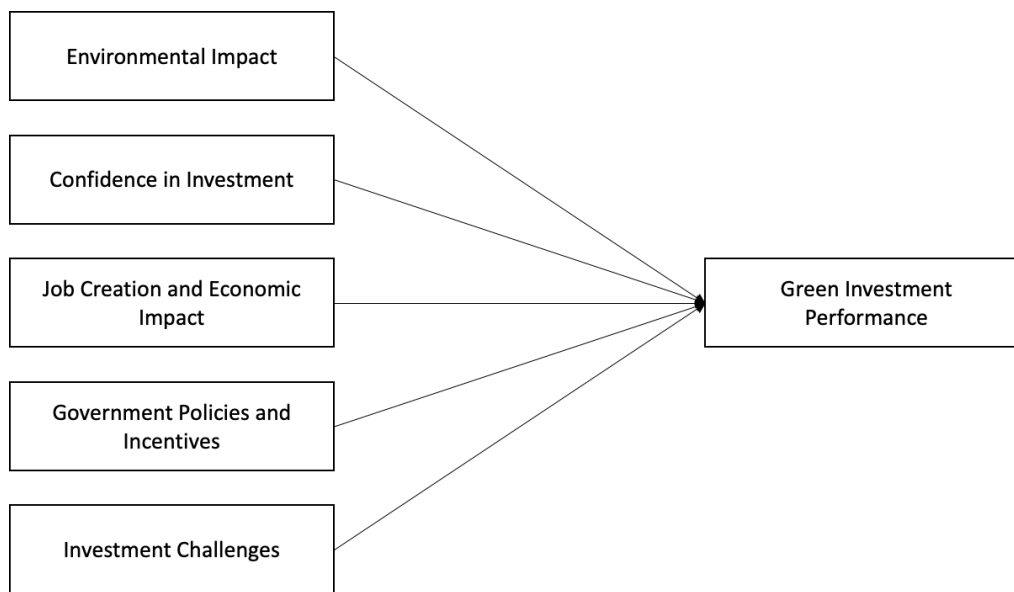

Figure 1. Proposed green investment performance model.

3. Methodology

The methodology employed examines the factors influencing green investment performance in Morocco (Ganda, 2025; Mei & Zhang, 2025; Xu et al., 2025). The approach integrates a structured quantitative survey method and statistical analyses to empirically assess the impact of five key independent variables: government policies and incentives, investment challenges, environmental impact, investor confidence, and job creation and economic impact (Cheng, 2025; González-Fernández & Pérez-Moreno, 2025; Haddad et al., 2023). The methodological framework is grounded in established literature and theoretical constructs, aiming to produce reliable and generalizable findings relevant to policymakers, investors, and development stakeholders (Jiang & Ma, 2025b; Ma et al., 2025; Yu & Zhang, 2025).

3.1. Data Collection

The data for this study were collected between November and December 2024 using a structured questionnaire administered online and in person. The questionnaire targeted individuals directly involved in Morocco's green investment ecosystem, including policymakers, private investors, financial analysts, project developers, and sustainability experts (Jiang & Ma, 2025b; S. Li et al., 2025; Weir et al., 2022). Respondents were recruited through industry forums, professional networks, and environmental investment platforms to ensure sector relevance (Cheng, 2025; Lai et al., 2025). The survey included 11 Likert-scale items (ranging from 1 = strongly disagree to 5 = strongly agree), grouped under five major constructs: government policies, investment challenges, environmental impact, investor confidence, and job creation and economic impact. Respondents were asked to assess their perceptions and experiences with green investment initiatives in Morocco based on their professional expertise.

3.2. Instrument Development and Justification

The questionnaire items were adapted and synthesized from validated instruments used in prior research, ensuring both reliability and contextual relevance: a) Government Policies & Incentives items were adapted from studies by Safhi et al. (2024) and AfDB (2018), which focused on policy effectiveness in renewable energy investments (Zhang & Wei, 2025). b) Investment Challenges items were informed by frameworks used in IRENA (2020) and Castillo-Díaz et al. (2025), reflecting barriers such as regulatory complexity and financing gaps. c) Environmental Impact questions were derived from González-Fernández & Pérez-Moreno (2025) and

Wang et al. (2024), with a focus on emissions reduction and ecological outcomes. d) Investor Confidence items were influenced by Global Green Growth Institute (2018) and Zhang et al. (2025), emphasizing perceived risk, trust, and long-term project stability. e) Job Creation and Economic Impact indicators were based on Zhou et al. (2025) and OECD reports that link green investments to local employment and development (Hanif & Zheng, 2025). The adaptation of these items was guided by their alignment with Sustainable Finance Theory and the Triple Bottom Line framework, both of which underpin the conceptual model of this study.

3.3. Sampling Design and Sample Size Rationale

A purposive sampling technique was employed to ensure that participants possessed specialized knowledge and direct involvement in Morocco's green investment sector. This non-probability sampling approach is appropriate for exploratory studies where the aim is to gather informed opinions from subject-matter experts. A total of 225 valid responses were collected, which is considered an adequate sample size for multiple regression and correlation analyses. The sample meets the minimum threshold recommended by Tabachnick and Fidell (2007), which suggests $N > 50 + 8m$, where m is the number of predictors. With five independent variables, the required minimum is 90; thus, a sample size of 225 ensures both statistical power and result robustness.

3.4. Analytical Techniques

For data analysis, descriptive statistics were first applied to summarize the basic characteristics of the collected data, including mean scores, standard deviations, and frequency distributions for each variable. This provided an overview of the respondents' perceptions and the overall trends in the green investment sector. To explore the relationships between the independent variables (IVs) and the dependent variable (DV) of green investment performance, two key statistical techniques were used: regression analysis and correlation analysis. Regression analysis was used to examine the causal relationship between the independent variables (such as government policies, investment challenges, environmental impact, investor confidence, and job creation) and the dependent variable (green investment performance). The general form of the multiple linear regression equation is:

$$\text{Green Investment Performance} = \beta_0 + \beta_1 (\text{Government Policies \& Incentives}) + \beta_2 (\text{Investment Challenges}) + \beta_3 (\text{Environmental Impact}) + \beta_4 (\text{Investor Confidence}) + \beta_5 (\text{Job Creation \& Economic Impact}) + \varepsilon$$

Where:

- Green Investment Performance is the dependent variable.
- Government policies, investment challenges, environmental impact, investor confidence, and job creation and economic impact are the independent variables.
- β_0 is the intercept term.
- β_1 to β_5 are the coefficients representing the impact of each independent variable on Green Investment Performance.
- ε is the error term.

This equation helps to quantify the effect of each independent variable on green investment performance, allowing for the identification of which factors most influence the success of green investments. The results of the regression analyses provided a solid foundation for making informed recommendations to improve investment strategies and policy interventions aimed at enhancing green investment outcomes in Morocco.

3.5. Questionnaire Inclusion

To ensure transparency, reproducibility, and research rigor, the full questionnaire used in this study is provided in Table 1. This inclusion supports future research replication and allows scholars to adapt or extend the instrument in similar contexts.

Table 1. Questionnaire.

Questions	Measurement scale
How would you rate the effectiveness of government policies and incentives (e.g., subsidies, tax breaks) in encouraging green investment in Morocco?	Measured on a scale from 1 (Very ineffective) to 5 (Very effective)
What are the main barriers you face when investing in green projects in Morocco?	Measured on a scale from 1 (Insufficient regulatory support), 2 (High initial investment costs), 3 (Lack of infrastructure), 4 (Political instability), 5 (Lack of skilled labor), 6 (Other – please specify)
How would you rate the environmental impact of green investments in Morocco in terms of reducing carbon emissions and promoting sustainability?	Measured on a scale from 1 (Very poor) to 5 (Excellent)
How confident are you in the long-term profitability of green investments in Morocco (e.g., solar, wind, energy efficiency)?	Measured on a scale from 1 (Not confident at all) to 5 (Very confident)
Do you believe that green investments in Morocco contribute significantly to job creation and economic development in local communities?	Measured on a scale from 1 (Strongly disagree) to 5 (Strongly agree)
On a scale of 1–5, how would you rate the overall performance of green investments in Morocco? Consider financial returns, environmental impact, and social outcomes.	Measured on a scale from 1 (Very poor) to 5 (Excellent)
What factors do you think most hinder the growth of green investments in Morocco?	Measured on a scale from 1 (Political instability), 2 (Regulatory challenges), 3 (Insufficient capital and financing), 4 (Lack of infrastructure), 5 (Public awareness)
How would you rate the role of government support (e.g., policies, financial incentives, green bonds) in enhancing the performance of green investments in Morocco?	Measured on a scale from 1 (Very poor) to 5 (Excellent)
To what extent do you believe Morocco's green investment projects are effectively contributing to environmental sustainability goals (e.g., carbon reduction, renewable energy generation)?	Measured on a scale from 1 (Not at all) to 5 (To a very large extent)
In your opinion, how likely is it that Morocco's green investment market will outperform traditional investments in the next 5–10 years?	Measured on a scale from 1 (Very unlikely) to 5 (Very likely)
What would encourage you to invest more in green projects in Morocco? (Select all that apply)	Measured on a scale from 1 (Higher government incentives or tax breaks), 2 (Improved financial return rates), 3 (Stronger regulatory frameworks and enforcement), 4 (Better public awareness and education about green investments), 5 (Enhanced infrastructure, e.g., grid connections, storage solutions)

4. Results

Table 2 presents the results of the reliability and validity tests conducted on the key constructs used in this study to measure green investment performance in Morocco. Each construct comprises multiple items adapted from established literature and measured on a 5-point Likert scale. The analysis was based on data collected from a sample of 225 respondents, including investors, policymakers, and industry experts. Cronbach's alpha (α) was used to assess internal consistency reliability, and all constructs exceeded the recommended threshold of 0.70 (Nunnally & Bernstein, 1994), indicating a high level of internal consistency among the items. For instance, the construct "Government Policies & Incentives" achieved a Cronbach's α of 0.78, demonstrating satisfactory reliability. Factor loadings for each item ranged between 0.69 and 0.88, which surpasses the acceptable cutoff of 0.60, suggesting that individual items strongly correlate with their respective latent constructs (Hair et al., 2010). Composite reliability (CR) was also calculated to further evaluate the internal consistency of the constructs. All CR values ranged from 0.82 to 0.87, exceeding the minimum criterion of 0.70, thereby confirming that the constructs are consistently measured. Average variance extracted (AVE) was used to assess convergent validity, and all AVE values were above the acceptable threshold of 0.50, indicating that the majority of the variance in the observed variables is explained by the latent constructs rather than measurement error. In summary, the reliability and validity results confirm that the measurement model used in this study is both reliable and valid, making it suitable for further statistical analyses such as regression and correlation. These metrics ensure that the constructs accurately reflect the concepts they are intended to measure, thus supporting the robustness of the study's findings on green investment performance in Morocco.

Table 2. Reliability and validity analysis.

Variable	Sample	Item	Factor Loading	Cronbach's α	Composite Reliability (CR)	Average Variance Extracted (AVE)
Government Policies & Incentives	225	GP1 GP2 GP3	0.72 – 0.84	0.78	0.85	0.59
Investment Challenges	225	IC1 IC2 IC3	0.69 – 0.81	0.75	0.83	0.56
Environmental Impact	225	EI1 EI2	0.76 – 0.88	0.8	0.87	0.64
Confidence in Investment	225	CI1 CI2	0.70 – 0.79	0.74	0.82	0.58
Job Creation & Economic Impact	225	JC1 JC2	0.73 – 0.85	0.77	0.84	0.61
Green Investment Performance	225	GIP1 GIP2	0.75 – 0.86	0.79	0.86	0.62

Table 3 presents the correlation matrix of key variables influencing green investment performance in Morocco. The correlations reveal interesting relationships between the factors. Government Policies show moderate positive correlations with Investment Challenges (0.445) and Investor Confidence (0.476), suggesting that stronger policies are linked with higher confidence and greater perceived challenges. Environmental Impact is positively correlated with Investor Confidence (0.522) and Job Creation (0.534), highlighting the importance of environmental benefits in boosting investor confidence and economic impact. Green Investment Performance has a moderate positive correlation with Environmental Impact (0.505) and Investment Performance (0.748), indicating that better environmental outcomes and previous investment success are strongly associated with higher performance. Government Support shows notable positive correlations with Investor Confidence (0.582), Investment Performance (0.753), and Environmental Sustainability (0.644), suggesting that robust government support and sustainability efforts significantly enhance investment outcomes. On the other hand, Incentives for Future Investments show weak to negative correlations with most variables, especially Government Policies (-0.347), indicating that respondents perceive future investment incentives as somewhat disconnected or less impactful. Overall, the matrix highlights the complex interplay between policy, investment challenges, and performance, with government actions and environmental factors playing pivotal roles in shaping green investment outcomes in Morocco.

Table 3. Matrix of correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Government Poli~s	1.000										
(2) Investment Chal~s	0.445	1.000									
(3) Environmental I~t	0.203	-0.038	1.000								
(4) Confidence in In~t	0.476	0.116	0.522	1.000							
(5) Job Creation and~t	0.313	0.210	0.534	0.610	1.000						
(6) Green Investmen~e	0.122	-0.181	0.505	0.243	0.249	1.000					
(7) Investment fact~s	0.066	-0.309	-0.067	0.159	-0.282	0.396	1.000				
(8) Government Supp~t	0.181	-0.033	0.552	0.582	0.032	0.538	0.509	1.000			
(9) Environmental S~y	0.173	-0.070	0.353	0.283	0.036	0.570	0.216	0.644	1.000		
(10) Investment Per~n	0.391	0.028	0.552	0.619	0.384	0.748	0.374	0.753	0.729	1.000	
(11) Incentives for~e	-0.347	-0.035	0.292	0.042	0.038	0.089	-0.048	0.317	0.174	0.126	1.000

Table 4 presents the results of the multiple linear regression analysis conducted to identify the key determinants of green investment performance in Morocco, using data from 225 respondents. The model includes several independent variables representing hypothesized drivers of green investment outcomes, such as government policy, environmental and economic factors, investor sentiment, and market conditions.

The model demonstrates high explanatory power, with an R-squared value of 0.747, indicating that approximately 74.7% of the variance in green investment performance is accounted for by the independent variables. The F-statistic of 63.098 ($p < 0.01$) confirms the overall statistical significance of the model. Among

the independent variables, Environmental Impact shows a positive and statistically significant association with green investment performance (β = 0.181, p < 0.01). This implies that projects with measurable environmental outcomes, such as reduced emissions or enhanced sustainability, are more likely to perform well. Job Creation and Economic Impact also exhibit a significant positive effect (β = 0.155, p < 0.01), suggesting that green investments generating employment and contributing to local economic development enhance project success and support. Investment Factors, representing favorable market conditions such as financial return expectations and capital availability, have a positive influence as well (β = 0.119, p < 0.01), indicating that economic viability remains a key consideration for green investment decisions.

Conversely, Investor Confidence is found to have a significant negative impact on green investment performance (β = −0.322, p < 0.01). This counterintuitive result may suggest that perceived uncertainties or mistrust in policy or market stability negatively influence actual investment outcomes, even when other factors are favorable. Variables such as Government Policies (β = −0.042, p = 0.128), Investment Challenges (β = −0.022, p = 0.173), and Government Support (β = 0.015, p = 0.832) were not statistically significant, indicating that these factors, while theoretically relevant, did not independently predict performance in the context of the sample studied. This could reflect inefficiencies in policy execution or a mismatch between policy incentives and investor priorities. Additionally, Incentives for Future Investment had a negative yet significant effect (β = −0.043, p < 0.05), which may reflect skepticism about the effectiveness or accessibility of planned incentives. Finally, the constant term (β = 1.873, p < 0.01) is significant, showing a baseline level of green investment performance even in the absence of other explanatory variables.

These findings highlight the critical role of environmental outcomes, socio-economic contributions, and favorable investment conditions in driving green investment success in Morocco. The results also point to a need for policymakers to reassess and strengthen the credibility and execution of green finance policies to enhance investor confidence and support.

Table 4. Regression analysis.

Green Investment Performance	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Government Policies	-0.042	0.027	-1.53	0.128	-0.096	0.012	
Investment Challenges	-0.022	0.016	-1.37	0.173	-0.055	0.010	
Environmental Impact	0.181	0.045	4.01	0.000	0.092	0.270	***
Confidence in Investment	-0.322	0.049	-6.50	0.000	-0.419	-0.224	***
Job Creation and Economic Impact	0.155	0.049	3.16	0.002	0.058	0.252	***
Investment factors	0.119	0.027	4.33	0.000	0.065	0.173	***
Government Support	0.015	0.071	0.21	0.832	-0.124	0.154	
Environmental Sustainability	0.023	0.034	0.67	0.502	-0.045	0.091	
Investment Performance and Confidence	0.374	0.045	8.31	0.000	0.285	0.463	***
Incentives for Future Investment	-0.043	0.018	-2.40	0.017	-0.078	-0.008	**
Constant	1.873	0.149	12.56	0.000	1.579	2.167	***
Mean dependent var	3.427	SD dependent var					0.496
R-squared	0.747	Number of obs					225
F-test	63.098	Prob > F					0.000
Akaike crit. (AIC)	34.712	Bayesian crit. (BIC)					72.289

*** p<.01, ** p<.05, * p<.1*

5. Discussion

The findings of this study provide important insights into the key determinants of green investment performance in Morocco. The regression and correlation analyses reveal that while government policies are perceived to play a supportive role, they do not have a statistically significant impact on investment performance. This suggests a potential gap between policy design and policy implementation. These findings are consistent with earlier research by Behera et al. (2025), who emphasized that in many emerging economies, policy frameworks lack the enforcement mechanisms or stability needed to foster investor trust in sustainable initiatives. Notably, environmental impact and job creation emerged as significant positive predictors of green investment success. This supports the conclusions of studies such as Najahi et al. (2025), which highlight the dual value of environmental and socioeconomic returns as crucial motivators for green investment. In the Moroccan context, this suggests that investments yielding clear environmental benefits, such as reduced

carbon emissions or renewable energy development, and those that stimulate employment and local economic development, are more likely to perform well and attract sustained investor interest.

Surprisingly, investor confidence was found to have a negative and statistically significant relationship with green investment performance. This counterintuitive result may indicate that perceptions of risk, policy volatility, or market uncertainty continue to dominate investor sentiment, ultimately undermining performance. This finding aligns with the observations of S. Li et al. (2025) and Yu (2025), who noted that investor confidence is particularly fragile in markets lacking mature green financial ecosystems or consistent regulatory support. Furthermore, while incentives for future investment were included in the model, they were negatively associated with performance. This suggests that current or proposed incentives are not perceived as sufficient or credible to stimulate meaningful additional investment. Previous investment performance, on the other hand, showed a strong and positive influence on future outcomes, indicating that a history of success reinforces investor engagement and expectations. This pattern is echoed in the work of Xie and Ying (2025) and Xu et al. (2025), who found that past returns in green finance strongly inform future investment decisions, particularly in less developed financial markets.

Theoretically, this study contributes to the growing literature on sustainable finance in emerging markets by providing empirical evidence from Morocco, a country often underrepresented in green finance research. It offers a context-specific model that integrates environmental, economic, policy, and psychological dimensions of investment performance. By identifying confidence and incentive perceptions as key limiting factors, the research extends existing frameworks that often assume government policies and incentives are automatically effective. Practically, the findings carry several implications for policymakers, development agencies, and investors. First, they underscore the need for Morocco to strengthen policy implementation, enhance regulatory consistency, and build trust in public support mechanisms. Second, there is a clear opportunity to design incentives that are more targeted, transparent, and results-based to effectively stimulate investor participation. Lastly, the results suggest that green projects that combine strong environmental impacts with job creation are likely to yield superior outcomes, making them prime candidates for both public and private sector backing.

This study highlights the critical role of execution over policy intent, the importance of investor perceptions, and the dual value of environmental and economic benefits. Strengthening institutional trust, designing smarter incentives, and promoting integrated sustainability outcomes will be essential for advancing Morocco's green investment landscape.

6. Conclusions

This study aimed to examine the key factors influencing green investment performance in Morocco, focusing on the roles of government policy, environmental impact, investor confidence, and job creation. The findings reveal that although government policies and support structures exist, their actual impact on green investment performance remains limited due to inconsistent implementation and inadequate incentives. In contrast, environmental impact and job creation emerged as significant positive drivers of investment success. Green investments that contribute to sustainability and local economic development tend to perform better, reinforcing global trends that favor environmentally responsible and socially inclusive projects. Conversely, low investor confidence was identified as a critical barrier, highlighting the need for stronger policy stability and credible support mechanisms. This research contributes to the literature on sustainable finance in emerging markets by providing empirical evidence from Morocco, offering a clearer understanding of how policy effectiveness, investor perceptions, and socio-environmental outcomes interact to shape investment performance. The insights gained can guide policymakers, investors, and development practitioners in designing more targeted and effective strategies to support green investment initiatives. To enhance green investment performance in Morocco, several practical measures are essential, including strengthening government support through consistent and transparent policy implementation, accompanied by well-targeted financial incentives. Addressing major investment barriers such as high upfront capital costs, regulatory inefficiencies, and inadequate infrastructure is also critical to fostering a more supportive investment environment. Enhancing investor confidence can be achieved by ensuring policy stability,

highlighting successful green projects, and promoting best practices in renewable energy. Prioritizing job-generating green initiatives, particularly in rural and underserved regions, will maximize the socio-economic benefits of sustainable investments. Finally, improving future incentives through long-term tax benefits, direct subsidies, and risk-sharing mechanisms will help attract greater private sector participation. Collectively, these strategies have the potential to improve green investment performance and advance Morocco's broader objectives of sustainable development, economic diversification, and environmental protection.

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