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Climate Risk Awareness and Its Impact on Financial Stability

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Abstract:
Climate change has emerged as a critical factor influencing global financial stability, necessitating increased awareness and proactive risk management. This research explores the significance of climate risk awareness and its impact on financial stability by analyzing the role of financial institutions, businesses, and policymakers in addressing climate-induced economic challenges. The study examines both physical risks, such as extreme weather events, and transition risks associated with regulatory shifts toward a low-carbon economy. Through a quantitative analysis of survey data, the research assesses the level of climate risk awareness among stakeholders and its correlation with financial preparedness. Findings indicate that while awareness is growing, gaps remain in financial resilience, particularly among lower-income and rural populations. The study underscores the importance of integrating climate risk considerations into financial decision-making, promoting regulatory transparency, and enhancing investment in sustainable finance. Strengthening climate risk awareness can significantly contribute to the development of adaptive financial systems and long-term economic stability.

CHAPTER I INTRODUCTION

Introduction:

Climate has emerged as one of the most pressing global challenges, influencing economies, businesses, and financial systems worldwide. As extreme weather events, rising temperatures, and environmental degradation become more frequent, the awareness of climate risks has gained significant importance. Climate risk awareness refers to the understanding and recognition of potential financial, economic, and social consequences arising from climate-related hazards.

With increasing climate uncertainty, financial institutions, businesses, and governments are integrating climate risk assessments into their decision-making processes. Individuals and organizations must be aware of the financial implications of climate risks, including physical risks such as floods, hurricanes, and wildfires, as well as transition risks associated with regulatory changes and shifts towards a low-carbon economy.

Growing awareness of climate risks influences investment decisions, asset valuations, and overall financial stability. Climate-related financial risks can disrupt markets, affect credit ratings, and create systemic economic vulnerabilities. Therefore, a well-informed society with enhanced climate risk awareness can contribute to improved risk management strategies, adaptation policies, and sustainable financial resilience.

The rising awareness of climate risks has also led to the development of innovative financial instruments such as green bonds, climate risk insurance, and sustainability-linked loans. These financial solutions help mitigate economic losses and support climate-resilient investments. Moreover, corporations and financial institutions are increasingly required to disclose climate-related risks and their financial impact as part of regulatory frameworks and international agreements.

Despite growing attention to climate risk awareness, challenges remain in ensuring that individuals, businesses, and financial stakeholders fully comprehend and integrate climate risks into their financial planning. Limited access to climate-related financial data, inadequate
regulatory enforcement, and varying levels of awareness across different regions hinder the effective implementation of climate risk mitigation strategies.

This study explores the role of climate risk awareness in shaping financial stability, the impact of climate-related risks on economic systems, and the importance of integrating awareness into financial policies. By enhancing climate risk awareness, financial institutions and policymakers can take proactive measures to mitigate climate-induced financial instability and foster long-term economic resilience.

Industry Overview

Introduction to Industry, Annual Turnover, and Growth Rate: Financial Services Industry

The financial services industry plays a crucial role in economic stability and development. It includes banking, insurance, investment firms, and financial technology (FinTech) companies. Climate risk awareness has become a key concern for the financial sector as extreme weather events, regulatory changes, and transition risks impact financial stability and market performance. The industry has seen substantial growth due to increased investments in sustainable finance and the rising demand for climate risk mitigation strategies. Governments and international organizations are introducing climate-related financial regulations, such as stress testing for banks and mandatory climate risk disclosures for corporations.

Recent studies indicate that the financial sector is witnessing a paradigm shift towards sustainable investments. According to the Global Sustainable Investment Alliance, global sustainable investment assets reached approximately $35 trillion in 2023, demonstrating a growing commitment to climate-conscious financial practices. Moreover, green bonds and climate funds are gaining traction, with significant capital inflows directed toward climate adaptation and resilience projects.

The financial services industry is adapting to climate challenges by integrating risk assessment frameworks and enhancing transparency in climate-related disclosures. Banks and investment firms are developing strategies to assess portfolio exposure to high-carbon industries, ensuring resilience against regulatory shifts and transition risks.

With increased consumer awareness and investor interest in climate-friendly financial products, the industry is expected to continue expanding its sustainability-focused initiatives. By 2030, the market for green finance is projected to grow at a compound annual growth rate (CAGR) of 12%, further reinforcing the importance of climate risk awareness in financial decision-making.

Understanding climate risks and their financial implications will be essential for businesses, policymakers, and financial institutions in navigating the evolving economic landscape. Through strategic adaptation and informed decision-making, the financial services sector can mitigate potential disruptions and contribute to long-term economic stability.

An Overview of Climate Risk Awareness in India (Current and Expected Future Scenario)

The increasing awareness of climate risks in India has led to a significant shift in financial and policy responses. Climate risk awareness plays a crucial role in shaping adaptation strategies, risk mitigation, and financial stability. As extreme climate events become more frequent, businesses, financial institutions, and individuals are recognizing the need to integrate climate resilience into decision-making processes.

The awareness of climate risks in India has been growing in recent years due to government initiatives,

corporate sustainability commitments, and public engagement. Several climate-focused financial instruments, such as green bonds and climate insurance, are being adopted to mitigate potential financial disruptions. The Indian government has also introduced regulations mandating climate risk disclosures for major corporations, driving increased transparency and accountability in financial markets.

India's financial sector is increasingly focusing on climate-conscious investment strategies. The country's green finance market is estimated to reach USD 50 billion by 2030, reflecting a rapid shift towards sustainable financial solutions. The adoption of renewable energy projects, carbon credit trading, and climate resilience funds is further reinforcing climate risk awareness in economic planning. In the coming years, climate risk awareness is expected to drive financial policy reforms, enhance regulatory frameworks, and promote sustainable economic practices. The integration of climate resilience strategies into financial planning will be essential for mitigating economic losses, protecting investments, and ensuring long-term financial stability in India and beyond.

Recent Developments in Climate Risk Management

Advanced Climate Risk Modeling: The use of artificial intelligence and big data analytics to predict climate risks more accurately and support financial decision-making.

Green Investment Strategies: Increasing adoption of ESG (Environmental, Social, and Governance) criteria in financial portfolios to minimize exposure to high-carbon industries.

Public-Private Partnerships: Collaborations between governments and financial institutions to enhance funding for climate adaptation projects.

Sustainable Infrastructure: Growth in climate-resilient infrastructure projects funded through green bonds and sustainability-linked loans.

Policy Enhancements: Governments implementing stricter climate risk disclosure regulations to promote transparency and accountability in financial markets.

Key Players in the Climate Risk Financial Sector

World Bank and IMF: These global financial institutions provide funding and policy guidance to nations to build climate resilience, supporting projects aimed at reducing the financial impacts of climate change.

UNEP Finance Initiative: Works with over 400 financial institutions worldwide to integrate sustainability into financial decision-making, ensuring financial markets support climate resilience.

CDP (Carbon Disclosure Project): Encourages companies and governments to disclose their environmental impact, helping investors and policymakers assess climate-related financial risks.

Global Insurers (AXA, Swiss Re, Munich Re): Leading insurance companies that develop climate risk insurance solutions to protect businesses and communities from climate-induced financial losses.

Green Bond Issuers (Government and Private Entities): These issuers raise capital for climate-related projects, financing renewable energy, sustainable infrastructure, and climate adaptation strategies worldwide.

Government Regulations for Climate Risk Management and Financial Stability

Climate Risk Disclosure Regulations: Governments worldwide are implementing mandatory climate risk disclosure requirements for corporations and financial institutions. Regulations such as the Task Force on Climate-related Financial Disclosures (TCFD) and the Securities and Exchange Board of India (SEBI) sustainability reporting framework require businesses to disclose their climate-related financial risks,

carbon emissions, and sustainability strategies. These disclosures enhance transparency and help investors make informed decisions.

Carbon Tax and Emission Trading Schemes (ETS): To mitigate climate risks, several countries have introduced carbon pricing mechanisms such as carbon taxes and Emissions Trading Schemes (ETS). These policies place a financial cost on carbon emissions, encouraging industries to reduce their carbon footprint. India is exploring an emissions trading system similar to those in the European Union and China, promoting a transition to a low-carbon economy.

Renewable Energy and Green Finance Policies: Governments are promoting renewable energy investments through subsidies, tax benefits, and low-interest green loans. India's National Solar Mission and Green Energy Corridor are key initiatives supporting climate-friendly power generation. Additionally, green banking guidelines issued by the Reserve Bank of India (RBI) encourage financial institutions to invest in climate-resilient infrastructure.

Climate Resilience and Adaptation Policies: Governments are developing climate adaptation strategies to protect economies from extreme weather events. The Indian government's National Adaptation Fund for Climate Change (NAFCC) provides financial support to projects aimed at reducing climate vulnerability in agriculture, water resources, and disaster management.

ESG (Environmental, Social, and Governance) Compliance: ESG regulations are becoming a priority for businesses worldwide. Companies are now required to integrate sustainability measures into their corporate governance structures. Regulatory bodies like SEBI and the Ministry of Corporate Affairs (MCA) in India have introduced mandatory ESG reporting, ensuring that businesses align with global climate sustainability goals.

Waste Management and Sustainable Practices: Governments are regulating industrial waste management and pollution control to minimize environmental damage. In India, the Plastic Waste Management Rules mandate businesses to adopt eco-friendly
packaging, reducing plastic consumption. Financial incentives such as carbon credits and circular economy policies support sustainable business practices.

Disaster Risk Reduction and Climate Insurance: As climate-induced disasters become more frequent, governments are developing disaster risk financing strategies. Programs like the Indian Disaster Risk Financing and Insurance (IDRF) and international climate insurance mechanisms provide financial security against floods, droughts, and cyclones. These policies ensure that businesses and communities can recover from climate shocks efficiently.

Public-Private Partnerships for Climate Finance: Governments are collaborating with private financial institutions to drive climate finance initiatives. India's Sovereign Green Bond Framework and Blended Finance Models encourage private investment in climate-resilient infrastructure, renewable energy, and sustainable agriculture.

SWOT Analysis – Climate Risk Awareness and Financial Stability

Strengths	**Weaknesses**
Growing Public Awareness	Limited Access to Climate Risk Data
Integration with Financial Systems	Regulatory Inconsistencies
Advancements in Climate Risk Modeling	High Cost of Adaptation
Government and Private Sector Collaboration	Lack of Climate Literacy in Financial Markets

Emergence of Green Finance Products	Short-Term Economic Focus
Opportunities	**Threats**
	Regulatory and Policy Uncertainty
Expansion of ESG Investments	Rising Climate-Related Disasters
Technological Innovations in Climate Risk Assessment	Dependence on Fossil Fuels
International Climate Finance Initiatives	Market Volatility Due to Climate Uncertainty
Corporate Sustainability Commitments	Public Resistance to Policy Changes
Green Jobs and Economic Transformation	

Strengths

1. **Growing Public Awareness**: Increased media coverage and government initiatives have made climate risk awareness more mainstream, leading to better-informed decision-making.
2. **Integration with Financial Systems**: Financial institutions are incorporating climate risk assessments into investment strategies, ensuring long-term stability.
3. **Advancements in Climate Risk Modeling**: The use of AI, big data, and predictive analytics has enhanced the accuracy of climate risk forecasting.
4. **Government and Private Sector Collaboration**: Stronger public-private partnerships are driving investments in climate-resilient projects.
5. **Emergence of Green Financial Products**: The rise of green bonds, sustainability-linked loans, and ESG investments supports climate resilience and economic growth.

Weaknesses

1. **Limited Brand Visibility:** Many businesses and financial institutions struggle to obtain comprehensive climate-related financial data.
2. **Regulatory Inconsistencies**: Different countries and financial markets have varied climate risk disclosure requirements, causing gaps in policy implementation.
3. **High Costs of Adaptation**: Climate risk mitigation efforts, such as transitioning to renewable energy, often require high initial investments.
4. **Lack of Climate Literacy in Financial Markets**: Many financial decision-makers lack expertise in integrating climate risk into their strategies.
5. **Short-Term Economic Focus**: Businesses and governments often prioritize immediate financial gains over long-term climate resilience.

Opportunities

1. **Expansion of ESG Investments**: Investors are increasingly considering environmental, social, and governance (ESG) factors, creating new financial opportunities.
2. **Technological Innovations in Climate Risk Assessment**: AI-driven modeling and blockchain-based transparency solutions can improve risk evaluation.
3. **International Climate Finance Initiatives**: Global financial institutions, such as the World Bank and IMF, are increasing funding for climate resilience projects.
4. **Corporate Sustainability Commitments**: More companies are pledging carbon neutrality and sustainability goals, boosting climate-conscious financial planning.
5. **Green Jobs and Economic Transformation**: Climate resilience initiatives can generate employment

opportunities in renewable energy, infrastructure, and sustainable finance.

Threats

1. **Regulatory and Policy Uncertainty**: Frequent policy changes and lack of global coordination on climate finance create uncertainty for investors.
2. **Rising Climate-Related Disasters:** The increasing frequency of extreme weather events could destabilize financial markets and economic stability.
3. **Dependence on Fossil Fuels:** Many economies still heavily rely on carbon-intensive industries, making transition risks a major financial concern.
4. **Market Volatility Due to Climate Uncertainty:** Unpredictable climate risks can impact investment returns and insurance markets.
5. **Public Resistance to Policy Changes:** Implementing carbon taxes, emission trading schemes, and regulatory changes may face political and public opposition.

CHAPTER II REVIEW OF LITERATURE

REVIEW OF LITERATURE

Climate change poses significant risks to financial stability, affecting economies, financial institutions, and investors. The literature on climate risk awareness and its impact on financial systems has expanded, providing insights into how these risks are identified, assessed, and managed. This review summarizes key studies that explore the intersection of climate risk and financial stability.

1. Climate Change and Financial Stability

This note from the Federal Reserve discusses how risks arising from climate change may affect financial stability. It outlines an approach to understanding these risks, distinguishing between shocks to the financial system and underlying vulnerabilities that can amplify negative effects. The note emphasizes the importance of incorporating climate-related risks into financial stability monitoring to mitigate potential systemic impacts.

2. Climate-Related Risks to Financial Stability

The European Central Bank's report examines how extreme climate and weather events, such as floods, wildfires, and hurricanes, can affect GDP through the destruction of property and physical capital. It discusses the lasting effects of physical hazards on economic output and the importance of diverting capital towards reconstruction and replacement. The report underscores the need for financial institutions to consider climate-related risks in their assessments to maintain financial stability.

3. Financial Stability Influence on Climate Risk, GHG Emission, and Economic Recovery

This study examines the nexus between financial stability, climate risks, greenhouse gas emissions, and green economic recovery in China. Using the Kalman technique of analysis, the research focuses on carbon risk and emphasizes the importance of financing efforts to protect against and reduce the hazards associated with climate change. The findings highlight the critical role of financial stability in supporting effective climate risk mitigation and promoting sustainable economic recovery.

4. The Effects of Climate Change-Related Risks on Banks

This literature review explores how both physical and transition risks associated with climate change can manifest as credit risks for banks. It discusses the potential for reduced margins due to higher insurance claims and the repricing of certain assets, particularly "stranded" assets. The review highlights the need for banks to integrate climate risk assessments into their risk management frameworks to mitigate potential

financial stability concerns.

5. **Climate Risks and Financial Stability**

This special issue is devoted to the relationship between climate risks and financial stability, representing a comprehensive attempt to fill the gap in existing literature. It discusses various aspects of how climate-related risks can impact financial systems and the importance of developing strategies to mitigate these risks. The publication emphasizes the need for ongoing research to better understand the complex interactions between climate change and financial stability.

6. **Financial Climate Risk: A Review of Recent Advances and Key Challenges**

This paper provides an overview of financial climate risks, discussing how climate change impacts the global financial system. It distinguishes between physical risks, such as extreme weather events, and transition risks stemming from policy changes and economic shifts towards low-carbon technologies. The document highlights the complexity of accurately defining financial climate risk and emphasizes the need for integrating climate science with financial risk analysis. The paper also discusses the pivotal role of microfinance institutions in addressing financial climate risk, especially for populations vulnerable to climate change.

7. **Managing Financial Climate Risk in Banking Services: A Review of Current Practices and the Challenges Ahead**

Focusing on the banking sector, this review examines current practices in managing financial climate risks. It identifies gaps in existing risk assessment frameworks, particularly in estimating physical and transition risks. The paper calls for the development of more detailed databases of exposed assets and improved climate hazard modeling to better inform risk management strategies in banking. The document emphasizes the importance of integrating financial climate risks into financial risk management practices, particularly in smaller banks and lending organizations.

8. **Central Banking's Song of Fire and Flood**

This article discusses how central banks have increasingly recognized the urgent need to address climate risks. It highlights the challenges posed by the financial sector's historical reliance on data modeling in predicting unprecedented climate events. The piece emphasizes that risk management now involves ensuring that collateral won't be destroyed by extreme weather, and discusses the significant impact of climate hazards on inflation. The evolving landscape suggests that central banks may need to integrate expertise in meteorology and hydrology, alongside economics, to accurately forecast and manage these risks.

9. **The Climate Crisis is Forcing Countries, Bankers, and Investors to Review the Architecture of National Debt**

This article examines how the increasing frequency and intensity of natural disasters due to climate change is prompting countries to reconsider debt structures. It discusses instruments like the "hurricane clause," which allows nations to suspend debt repayment in the wake of natural disasters, providing temporary relief without erasing debt. The piece highlights the importance of adapting financial frameworks to enable vulnerable countries to invest in resilient infrastructure and solutions in the face of escalating climate risks.

10. **Task Force on Climate-Related Financial Disclosures (TCFD)**

Established in December 2015 by the G20 and the Financial Stability Board, the TCFD provides a framework for companies to disclose climate-related financial information. It focuses on governance, strategy, risk management, and metrics and targets, aiming to promote informed investment decisions and enable stakeholders to understand better the concentrations of carbon-related assets in the financial sectors.

The TCFD's recommendations are becoming increasingly influential, with some jurisdictions moving toward mandatory disclosures.

11. Climate-Related Financial Stability Risks

This paper reviews existing literature on climate-related financial stability risks (CRFSRs) that may impact the financial system. It emphasizes the need for comprehensive risk assessments to understand how climate change can affect financial institutions and markets. The authors highlight the importance of integrating climate risk considerations into financial stability monitoring frameworks to enhance the resilience of the financial sector.

Research Questions

1. How do climate-related financial stability risks affect the resilience of financial institutions?
2. What are the key vulnerabilities within the financial system that amplify the effects of climate change?
3. How do extreme weather events influence GDP growth and financial stability?
4. What role does financial stability play in mitigating climate risks and supporting economic recovery?
5. How do physical and transition climate risks impact the credit risk of banks?
6. What are the major gaps in research regarding climate risks and financial stability?
7. How do financial institutions perceive and respond to climate-related financial risks?
8. How can financial institutions effectively integrate climate science into financial risk analysis?
9. What are the key challenges in assessing and managing climate risk in the banking sector?
10. How do financial markets respond to carbon pricing mechanisms and climate-related regulations?
11. What role do climate stress tests play in assessing systemic financial risks?
12. How does climate change impact the valuation of stranded assets in high-carbon industries?
13. What are the financial implications of climate-related litigation risks for corporations and investors?
14. How do climate-related financial disclosures affect investment decision-making?
15. How does climate change contribute to market volatility and investment risks?
16. What role do green bonds and sustainability-linked loans play in mitigating climate risks?
17. How effective are public-private partnerships in financing climate adaptation projects?
18. How does climate risk influence the insurance industry and the pricing of climate-related policies?
19. What are the key strategies for integrating ESG (Environmental, Social, and Governance) principles into financial decision-making?
20. How can regulatory frameworks be improved to ensure comprehensive climate risk management in financial markets?

CHAPTER III RESEARCH DESIGN

RESEARCH DESIGN

A quantitative research design was used to systematically collect and analyze numerical data related to climate risk awareness and its impact on financial stability. Quantitative research is appropriate because it enables the collection of measurable data that can be analyzed to identify patterns and relationships. Structured questionnaires were circulated to collect primary data from a diverse group of respondents, including bankers, teachers, students, government officials, and other professionals. The research aims to gather empirical evidence on how climate risks influence financial stability and systemic risk levels.

Statement of the Problem:

Climate change poses significant threats to global financial systems through both physical risks (such as extreme weather events) and transition risks (related to policy shifts toward a low-carbon economy). These

risks can disrupt financial stability by affecting asset valuations, increasing default probabilities, and creating systemic financial vulnerabilities. Despite increasing awareness, the extent to which financial institutions and stakeholders integrate climate risks into their decision-making processes remains uncertain. This study aims to assess the level of climate risk awareness and its direct impact on financial stability, particularly focusing on the interconnectedness of financial institutions and their resilience to climate shocks.

Research Objectives

1. To analyze the level of climate risk awareness among various stakeholders, including financial institutions, educators, and government officials.
2. To examine the impact of physical and transition risks on financial stability.
3. To assess how financial interconnectedness influences the amplification or mitigation of climate-related risks.
4. To evaluate the effectiveness of current risk management strategies in addressing climate-related financial risks.
5. To determine the extent to which climate risk awareness influences systemic risk levels in the financial system.

Scope of the Study

This study will explore key aspects of climate risk awareness and its financial implications:

1. The extent to which financial institutions and other stakeholders integrate climate risks into their risk management frameworks.
2. The role of financial interconnectedness in transmitting or mitigating climate-related financial risks.
3. The impact of climate risks on asset valuations, credit markets, and overall financial stability.
4. The relationship between climate risk awareness and the resilience of financial institutions to climate shocks.
5. The effectiveness of regulatory policies and financial instruments in addressing climate-related financial risks.

Need for the study

The increasing frequency of climate-related disasters and the ongoing transition toward a low-carbon economy necessitate a better understanding of their financial implications. Financial institutions and other stakeholders must proactively integrate climate risk considerations into their risk assessment and management strategies to ensure stability. This study will provide insights into how various actors perceive and respond to climate risks, offering valuable information for policymakers, regulators, and institutions aiming to strengthen financial resilience against climate shocks.

Hypotheses:

1. H1: Higher climate risk awareness among stakeholders reduces systemic risk levels.
2. H2: Physical climate risks have a significant negative impact on financial stability.
3. H3: Transition risks increase financial uncertainty and market volatility.
4. H4: Financial interconnectedness amplifies the transmission of climate-related financial risks.
5. H5: Effective climate risk management strategies enhance financial stability.

Variables

The study involves both independent and dependent variables.

Independent Variables:

- Climate-related risks (Physical risks: extreme weather events; Transition risks: regulatory changes,

market shifts).
- Financial interconnectedness (the extent to which financial institutions and stakeholders are linked and how these connections influence risk transmission).

Dependent Variables:
- Financial stability (measured by resilience indicators such as capital adequacy, liquidity ratios, and asset quality).
- Systemic risk levels (assessed through financial stress indicators, interbank market dependencies, and risk concentration levels).

Instrument Design

A structured questionnaire A structured questionnaire was designed to collect insights from bankers, teachers, students, government officials, and other professionals regarding climate risk awareness and its impact on financial stability. The questionnaire included sections on:

1. Demographics (occupation, age, sector involvement).
2. Awareness of climate-related financial risks.
3. Integration of climate risk factors in financial decision-making.
4. Perceived impact of climate risks on financial performance.
5. Risk management strategies for mitigating climate-related financial risks.
6. Views on regulatory policies addressing climate risks.

Data Collection Method (Type and Source of Data)

Primary data was collected through structured online surveys distributed via email and social networks. The survey targeted a diverse group of respondents, including bankers, teachers, students, government officials, and other professionals. A total of 443 responses were gathered, ensuring a broad dataset that captures varying perspectives on climate risk awareness and financial stability.

Sample Size and Sampling Technique

A total of A total of 443 respondents participated in the study, representing a diverse group of professionals and stakeholders. A convenience sampling technique was employed to efficiently collect data from participants who were readily available and willing to participate in the study.

Statistical Design (Data Analysis Tool Used)

The collected data was analyzed using multiple statistical software. The statistical analysis includes some of tests such as:

1. **Descriptive statistics** to summarize demographic data and overall climate risk awareness levels.
2. **Correlation analysis** to examine relationships between climate risk awareness and financial stability.
3. **Regression analysis** to determine the impact of climate-related risks on financial stability indicators.
4. **Factor analysis** to identify key drivers of climate risk perception and its financial implications.

Limitations of the Study

1. **Limited sample representation:** The study focuses on a select group of professionals and may not fully represent all industries affected by climate risk.
2. **Self-reported data bias:** Participants may overstate or understate their awareness and risk management practices.
3. **Dynamic nature of climate risks:** Climate-related risks evolve over time, and this study captures a snapshot rather than long-term trends.
4. **Regulatory variations:** Different countries and regions have different climate risk policies, which

may influence how stakeholders perceive and respond to risks.

5. **Complexity of financial networks:** The study may not fully capture the intricate interdependencies within financial systems.

CHAPTER IV
ANALYSIS AND INTERPRETATION

Analysis of Descriptive Statistics on Climate Risk Awareness

Results

Descriptives

Descriptives

	What_is_your_age_group	What_is_your_primary_occupation	Where_do_you_live	I_am_aware_of_the_financial_impacts_of_climate_risks_in_my_area.	Climate_related_events_
N	443	443	443	443	
Missing	0	0	0	0	
Mean				3.24	
Median				3	
Mode				2.00	
Standard deviation				1.29	
Variance				1.67	
Minimum				1	
Maximum				5	
Shapiro-Wilk W				0.854	
Shapiro-Wilk p				<.001	

Frequencies

Frequencies of What_is_your_age_group

What_is_your_age_group	Counts	% of Total	Cumulative %
18–25	105	23.7%	23.7%
26–35	177	40.0%	63.7%
36–50	119	26.9%	90.5%
Above 50	19	4.3%	94.8%
Under 18	23	5.2%	100.0%

Frequencies of What_is_your_primary_occupation

What_is_your_primary_occupation	Counts	% of Total	Cumulative %
Business Owner	81	18.3%	18.3%
Employed (Private Sector)	160	36.1%	54.4%
Employed (Public Sector)	66	14.9%	69.3%
Homemaker	76	17.2%	86.5%
Student	38	8.6%	95.0%
Unemployed/Retired	22	5.0%	100.0%

Frequencies of Where_do_you_live

Where_do_you_live	Counts	% of Total	Cumulative %
Rural Area	120	27.1%	27.1%
Semi-Urban Area	155	35.0%	62.1%
Urban Area	168	37.9%	100.0%

Frequencies of I_am_aware_of_the_financial_impacts_of_climate_risks_in_my_area.

I_am_aware_of_the_financial_impacts_of_climate_risks_in_my_area.	Counts	% of Total	Cumulative %
1	20	4.5%	4.5%
2	160	36.1%	40.6%
3	66	14.9%	55.5%
4	88	19.9%	75.4%
5	109	24.6%	100.0%

Frequencies of Insurance_options_for_climate_related_risks_are_accessible_and_affordable_in_my_community.

Insurance_options_for_climate_related_risks_are_accessible_and_affordable_in_my_community.	Counts	% of Total	Cumulative %
1	78	17.6%	17.6%
2	165	37.2%	54.9%
3	72	16.3%	71.1%
4	74	16.7%	87.8%
5	54	12.2%	100.0%

Frequencies of Government_policies_adequately_address_the_financial_aspects_of_climate_risks.

Government_policies_adequately_address_the_financial_aspects_of_climate_risks.	Counts	% of Total	Cumulative %
1	80	18.1%	18.1%
2	166	37.5%	55.5%
3	67	15.1%	70.7%
4	79	17.8%	88.5%
5	51	11.5%	100.0%

Frequencies of Private_sector_funding_is_crucial_for_addressing_climate_related_challenges_in_my_area.

Private_sector_funding_is_crucial_for_addressing_climate_related_challenges_in_my_area.	Counts	% of Total	Cumulative %
1	90	20.3%	20.3%
2	129	29.1%	49.4%
3	51	11.5%	60.9%
4	102	23.0%	84.0%
5	71	16.0%	100.0%

Frequencies of I_have_personally_invested_in_measures_to_protect_against_climate_related_risks_(e.g._property_insurance,_renewable_energy,_flood_defenses).

I_have_personally_invested_in_measures_to_protect_against_climate_related_risks_(e.g._property_insurance,_renewable_energy,_flood_defenses).	Counts	% of Total	Cumulative %
1	87	19.6%	19.6%
2	132	29.8%	49.4%
3	72	16.3%	65.7%
4	101	22.8%	88.5%
5	51	11.5%	100.0%

Frequencies of Financial_constraints_are_the_biggest_challenge_in_preparing_for_or_recovering_from_climate_related_risks.

Financial_constraints_are_the_biggest_challenge_in_preparing_for_or_recovering_from_climate_related_risks.	Counts	% of Total	Cumulative %
1	85	19.2%	19.2%
2	131	29.6%	48.8%
3	50	11.3%	60.0%
4	100	22.6%	82.6%
5	77	17.4%	100.0%

Frequencies of I_feel_financially_prepared_to_handle_a_climate_related_disaster.

I_feel_financially_prepared_to_handle_a_climate_related_disaster.	Counts	% of Total	Cumulative %
1	92	20.8%	20.8%
2	147	33.2%	54.0%
3	73	16.5%	70.4%
4	79	17.8%	88.3%
5	52	11.7%	100.0%

Frequencies of There_is_a_need_for_more_financial_awareness_and_literacy_regarding_climate_risks_in_my_area.

There_is_a_need_for_more_financial_awareness_and_literacy_regarding_climate_risks_in_my_area.	Counts	% of Total	Cumulative %
1	75	16.9%	16.9%
2	137	30.9%	47.9%
3	47	10.6%	58.5%
4	77	17.4%	75.8%
5	107	24.2%	100.0%

Frequencies of Climate_related_events_in_my_area_have_significantly_increased_financial_burdens_for_individuals_and_businesses.

Climate_related_events_in_my_area_have_significantly_increased_financial_burdens_for_individuals_and_businesses.	Counts	% of Total	Cumulative %
1	59	13.3%	13.3%
2	139	31.4%	44.7%
3	67	15.1%	59.8%
4	89	20.1%	79.9%
5	89	20.1%	100.0%

Frequencies of My_community_has_sufficient_financial_resources_to_mitigate_and_recover_from_climate_risks.

My_community_has_sufficient_financial_resources_to_mitigate_and_recover_from_climate_risks.	Counts	% of Total	Cumulative %
1	66	14.9%	14.9%
2	167	37.7%	52.6%
3	76	17.2%	69.8%
4	78	17.6%	87.4%
5	56	12.6%	100.0%

Frequencies of Access_to_funding_for_climate_risk_management_is_adequate_in_my_area.

Access_to_funding_for_climate_risk_management_is_adequate_in_my_area.	Counts	% of Total	Cumulative %
1	69	15.6%	15.6%
2	171	38.6%	54.2%
3	80	18.1%	72.2%
4	72	16.3%	88.5%
5	51	11.5%	100.0%

Frequencies of I_believe_government_programs_offer_sufficient_financial_support_to_address_climate_related_challenges.

I_believe_government_programs_offer_sufficient_financial_support_to_address_climate_related_challenges.	Counts	% of Total	Cumulative %
1	71	16.0%	16.0%
2	181	40.9%	56.9%
3	81	18.3%	75.2%
4	59	13.3%	88.5%
5	51	11.5%	100.0%

Frequencies of Businesses_in_my_area_are_investing_in_climate_resilient_infrastructure_or_practices.

Businesses_in_my_area_are_investing_in_climate_resilient_infrastructure_or_practices.	Counts	% of Total	Cumulative %
1	88	19.9%	19.9%
2	163	36.8%	56.7%
3	78	17.6%	74.3%
4	67	15.1%	89.4%
5	47	10.6%	100.0%

Frequencies of I_am_aware_of_financial_incentives_(e.g._subsidies,_grants)_offered_by_the_government_for_climate_risk_mitigation.

I_am_aware_of_financial_incentives_(e.g._subsidies,_grants)_offered_by_the_government_for_climate_risk_mitigation.	Counts	% of Total	Cumulative %
1	82	18.5%	18.5%
2	142	32.1%	50.6%
3	68	15.3%	65.9%
4	97	21.9%	87.8%
5	54	12.2%	100.0%

Frequencies of My_business/employer_has_taken_financial_measures_(e.g._allocating_budgets,_accessing_funds)_to_address_climate_risks.

My_business/employer_has_taken_financial_measures_(e.g._allocating_budgets,_accessing_funds)_to_address_climate_risks.	Counts	% of Total	Cumulative %
1	86	19.4%	19.4%
2	146	33.0%	52.4%
3	82	18.5%	70.9%
4	71	16.0%	86.9%
5	58	13.1%	100.0%

Frequencies of Climate_risks_have_disrupted_financial_stability_in_my_community_(e.g._loss_of_revenue,_increased_costs).

Climate_risks_have_disrupted_financial_stability_in_my_community_(e.g._loss_of_revenue,_increased_costs).	Counts	% of Total	Cumulative %
1	80	18.1%	18.1%
2	136	30.7%	48.8%
3	72	16.3%	65.0%
4	98	22.1%	87.1%
5	57	12.9%	100.0%

Frequencies of There_is_a_need_for_greater_collaboration_between_financial_institutions_and_local_communities_to_address_climate_risks.

There_is_a_need_for_greater_collaboration_between_financial_institutions_and_local_communities_to_address_climate_risks.	Counts	% of Total	Cumulative %
1	94	21.2%	21.2%
2	123	27.8%	49.0%
3	52	11.7%	60.7%
4	98	22.1%	82.8%
5	76	17.2%	100.0%

Frequencies of There_is_a_need_for_greater_collaboration_between_financial_institutions_and_local_communities_to_address_climate_risks.

There_is_a_need_for_greater_collaboration_between_financial_institutions_and_local_communities_to_address_climate_risks.	Counts	% of Total	Cumulative %
1	94	21.2%	21.2%
2	123	27.8%	49.0%
3	52	11.7%	60.7%
4	98	22.1%	82.8%
5	76	17.2%	100.0%

Frequencies of Vulnerable_groups_in_my_area_lack_access_to_financial_resources_needed_to_prepare_for_climate_related_events.

Vulnerable_groups_in_my_area_lack_access_to_financial_resources_needed_to_prepare_for_climate_related_events.	Counts	% of Total	Cumulative %
1	83	18.7%	18.7%
2	123	27.8%	46.5%
3	67	15.1%	61.6%
4	104	23.5%	85.1%
5	66	14.9%	100.0%

Frequencies of Climate_finance_should_prioritize_funding_for_vulnerable_groups_to_ensure_equitable_resilience_measures.

Climate_finance_should_prioritize_funding_for_vulnerable_groups_to_ensure_equitable_resilience_measures.	Counts	% of Total	Cumulative %
1	67	15.1%	15.1%
2	142	32.1%	47.2%
3	58	13.1%	60.3%
4	104	23.5%	83.7%
5	72	16.3%	100.0%

Frequencies of I_believe_financial_institutions_should_actively_invest_in_sustainability_and_climate_resilience_projects.

I_believe_financial_institutions_should_actively_invest_in_sustainability_and_climate_resilience_projects.	Counts	% of Total	Cumulative %
1	77	17.4%	17.4%
2	127	28.7%	46.0%
3	59	13.3%	59.4%
4	93	21.0%	80.4%
5	87	19.6%	100.0%

Frequencies of Public_private_partnerships_can_significantly_enhance_climate_finance_availability_in_my_area.

Public_private_partnerships_can_significantly_enhance_climate_finance_availability_in_my_area.	Counts	% of Total	Cumulative %
1	86	19.4%	19.4%
2	125	28.2%	47.6%
3	56	12.6%	60.3%
4	97	21.9%	82.2%
5	79	17.8%	100.0%

Frequencies of Innovative_financial_tools_(e.g.,_green_bonds,_climate_funds)_are_necessary_to_address_long_term_climate_risks.

Innovative_financial_tools_(e.g.,_green_bonds,_climate_funds)_are_necessary_to_address_long_term_climate_risks.	Counts	% of Total	Cumulative %
1	78	17.6%	17.6%
2	128	28.9%	46.5%
3	50	11.3%	57.8%
4	101	22.8%	80.6%
5	86	19.4%	100.0%

Frequencies of My_local_government_is_transparent_about_how_climate_related_funds_are_utilized.

My_local_government_is_transparent_about_how_climate_related_funds_are_utilized.	Counts	% of Total	Cumulative %
1	83	18.7%	18.7%
2	163	36.8%	55.5%
3	81	18.3%	73.8%
4	64	14.4%	88.3%
5	52	11.7%	100.0%

Frequencies of My_local_government_is_transparent_about_how_climate_related_funds_are_utilized.

My_local_government_is_transparent_about_how_climate_related_funds_are_utilized.	Counts	% of Total	Cumulative %
1	83	18.7%	18.7%
2	163	36.8%	55.5%
3	81	18.3%	73.8%
4	64	14.4%	88.3%
5	52	11.7%	100.0%

Frequencies of Community_based_initiatives,_supported_by_climate_finance,_can_be_effective_in_building_resilience_against_climate_risks.

Community_based_initiatives,_supported_by_climate_finance,_can_be_effective_in_building_resilience_against_climate_risks.	Counts	% of Total	Cumulative %
1	90	20.3%	20.3%
2	122	27.5%	47.9%
3	56	12.6%	60.5%
4	107	24.2%	84.7%
5	68	15.3%	100.0%

Frequencies of I_believe_increased_access_to_international_climate_finance_could_help_my_community_address_climate_risks_better.

I_believe_increased_access_to_international_climate_finance_could_help_my_community_address_climate_risks_better.	Counts	% of Total	Cumulative %
1	52	11.7%	11.7%
2	138	31.2%	42.9%
3	62	14.0%	56.9%
4	113	25.5%	82.4%
5	78	17.6%	100.0%

This descriptive statistic provides valuable insights into how well respondents understand the financial implications of climate risks. Below is an in-depth interpretation of each statistical measure:

1. Mean (Average) Awareness Level → 3.24 (Moderate Awareness)

1. The mean score of 3.24 on a 5-point scale suggests that overall awareness is moderate—respondents, on average, neither completely lack awareness nor are they highly informed.
2. However, since the mean is slightly above 3 (neutral midpoint), it leans toward a moderate-to-high level of awareness.
3. This number alone does not reveal the distribution of responses, which is why variance and frequency distributions are essential for a more nuanced understanding.

Implication:

1. The population has some awareness, but a significant portion is still unaware of the financial risks associated with climate change.
2. More efforts are needed to push awareness toward higher levels (4 and 5 ratings).

2. Median (Middle Value) → 3

1. The median represents the middle value when all awareness scores are arranged in ascending order.
2. A median of 3 means that half of the respondents have awareness below 3, while the other half are above or equal to 3.
3. Since the median equals the mean (3.24 ≈ 3), the distribution is fairly symmetric, but needs further exploration through mode and standard deviation.

Implication:

1. The median aligns with the mean, reinforcing that most people have only a basic or moderate understanding of climate-related financial risks.
2. However, this still means that at least 50% of the population is below a high-awareness level (4 or 5).

3. Mode (Most Frequent Response) → 2

1. The mode of 2 is the most frequently occurring response, meaning that more respondents selected "2" (low awareness) than any other value.
2. This suggests that a large portion of respondents have below-moderate awareness, even though the average awareness level is 3.24.
3. A mode of 2, lower than the mean and median, suggests that a large cluster of responses skews toward the lower side of awareness.

Implication:

1. Despite an average awareness level of 3.24, the most common response is still low awareness.
2. This suggests that the distribution is slightly skewed toward lower awareness levels, indicating a need for better public financial education on climate risks.

4. Standard Deviation (Variability) → 1.29 (Moderate Variability)

1. A standard deviation of 1.29 means that individual responses tend to deviate by about 1.29 points from the mean (3.24).
2. This suggests moderate variability in how people perceive their awareness of financial climate risks.
3. Some respondents feel very aware (4 and 5 ratings), while others are unaware (1 and 2 ratings), creating a broad spread of perceptions.

Implication:

1. A low standard deviation (close to 0) would mean most people have the same awareness level, while

a high standard deviation (closer to 2) would indicate extreme differences in responses.
2. Since 1.29 is moderate, there is some agreement among respondents, but significant variations still exist.
3. This means that targeted educational interventions could work effectively, as awareness is not highly polarized.

5. Variance → 1.67 (Moderate Spread in Awareness)

1. Variance is the square of the standard deviation and measures how much responses differ from the mean.
2. A variance of 1.67 reinforces that awareness is spread out but not too extreme.

Implication:

1. If variance were near 0, it would mean almost all respondents share the same awareness level.
2. A variance of 1.67 means that awareness is somewhat diverse but still concentrated around moderate levels (scores of 2, 3, and 4).
3. Awareness is not uniformly distributed, meaning targeted education campaigns could help shift more people toward higher awareness levels.

6. Minimum Score → 1 (Least Aware) & Maximum Score → 5 (Most Aware)

1. Minimum Score (1): Some respondents are completely unaware of the financial risks of climate change.
2. Maximum Score (5): Others fully understand the financial implications of climate risks.
3. Since both extremes are present, we confirm that awareness is not uniform, and efforts should focus on shifting the lower-awareness group toward the middle or higher end.

Implication:

1. The presence of a minimum score of 1 suggests that there is a segment of the population that has zero awareness, making them highly vulnerable.
2. The maximum score of 5 indicates that some respondents are well-informed and financially prepared.
3. The key challenge is reducing the number of respondents in the "1" and "2" categories while increasing the numbers in "4" and "5" categories.

7. Shapiro-Wilk Test for Normality → W = 0.854, p < .001 (Non-Normal Distribution)

1. Shapiro-Wilk W = 0.854
2. p-value < 0.001 (statistically significant deviation from normality)
3. The null hypothesis (data is normally distributed) is rejected, meaning that awareness scores are not normally distributed.

Implication:

1. Since the data is non-normally distributed, statistical analyses assuming normality (e.g., t-tests or ANOVA) may not be fully appropriate.
2. Instead, non-parametric tests (e.g., Kruskal-Wallis, Mann-Whitney U test) should be used when analyzing differences between groups.
3. The non-normal distribution suggests that a larger group of respondents have lower awareness (modes of 2), while fewer have very high awareness (5).

8. Frequency Distribution Analysis

Awareness Score	Count	Percentage (%)	Cumulative %
1 (Least Aware)	20	4.5%	4.5%
2	160	36.1%	40.6%
3	66	14.9%	55.5%
4	88	19.9%	75.4%
5 (Most Aware)	109	24.6%	100%

Interpretation:

1. 40.6% of respondents (1 & 2 ratings) have low awareness, meaning almost half the population is financially unprepared for climate risks.
2. Only 44.5% (4 & 5 ratings) have high awareness, which means that despite climate finance being a critical topic, a majority of people are not fully informed.
3. The largest single category is 2 (160 respondents, 36.1%), suggesting that low awareness is more common than high awareness.
4. The distribution is not symmetrical, meaning there are more people with low awareness than high awareness.

Detailed Correlation and Comparative Analysis

Statistical analyses to examine how climate risk awareness relates to residential area and employment sector (income level proxy).

1. Awareness vs. Residential Area (Rural vs. Semi-Urban vs. Urban)

1. Spearman Correlation Coefficient: +0.892
   p-value: 4.09×10^{-154} (highly significant)
2. Kruskal-Wallis Test (H-Test p-value): 5.79×10^{-78} (highly significant differences between groups)

Interpretation:

1. A strong positive correlation (+0.892) means that as we move from rural to semi-urban to urban areas, awareness increases significantly.
2. The p-value < 0.001 confirms that these differences are statistically significant, meaning this pattern is not due to chance.
3. Urban respondents have the highest awareness, while rural respondents have the lowest awareness.

Possible Reasons:

1. Urban areas have better access to financial education, climate discussions, and government policies.
2. Rural areas may face limited financial literacy programs, lower access to insurance, and lower direct engagement with climate finance initiatives.

Policy Implication:

1. Rural awareness programs should be prioritized, possibly through localized financial literacy campaigns.
2. Climate-related financial products should be made accessible to rural populations through government or private sector initiatives.

2. Awareness vs. Employment Sector (Proxy for Income Levels)

1. Spearman Correlation Coefficient: -0.914
   p-value: 6.51×10^{-175} (highly significant)

2. Kruskal-Wallis Test (H-Test p-value): 5.94×10^{-82} (significant differences b/w groups)

Interpretation:

1. A strong negative correlation (-0.914) means that as we move from business owners/private sector employees (higher-income groups) to students/unemployed individuals (lower-income groups), awareness decreases.
2. The p-value < 0.001 indicates these differences are statistically significant.

Employment Category Awareness Trends:

1. Business Owners & Private Sector Employees → Highest awareness (scores closer to 4 and 5)
2. Public Sector Employees → Moderate awareness (scores around 3-4)
3. Homemakers & Students → Lower awareness (scores around 2-3)
4. Unemployed/Retired Individuals → Lowest awareness (scores around 1-2)

Possible Reasons:

1. Business owners/private sector employees are financially literate and directly affected by climate finance policies (e.g., carbon taxes, insurance rates, and supply chain risks).
2. Students & unemployed individuals may have less exposure to financial planning and climate risk management.

Policy Implication:

1. Government & private institutions should target awareness programs towards students, unemployed individuals, and homemakers, as these groups have the lowest financial preparedness for climate risks.
2. Employers in the public sector should improve internal awareness programs on financial risks related to climate change.

VARIOUS TESTS

CORRELATION

Correlation Hypothesis for H1

Descriptive Statistics

	Mean	Std. Deviation	N
Transition_Risk	2.6749	1.09355	443
Systematic_risk_levels	2.8375	1.16236	443

Correlations

		Transition_Risk	Systematic_risk_levels
Transition_Risk	Pearson Correlation	1	.847**
	Sig. (2-tailed)		<.001
	N	443	443
Systematic_risk_levels	Pearson Correlation	.847**	1
	Sig. (2-tailed)	<.001	
	N	443	443

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Between Transition Risk and Systematic Risk Levels

Descriptive Statistics:

1. **Transition Risk Mean:** 2.6749 (Moderate)
2. **Systematic Risk Levels Mean:** 2.8375 (Moderate-High)
3. **Standard Deviation:** Around 1.1 for both, indicating some variation but not extreme.

Correlation Analysis:

1. **Pearson Correlation (r = 0.847) → Strong positive correlation** between **Transition Risk** and **Systematic Risk Levels**.
2. **Significance Level (p < 0.001)** → The correlation is statistically significant.
   Interpretation: Higher transition risks (regulatory and market changes due to climate policies) are **strongly linked to increasing systematic financial risks**.

Correlation Hypothesis for H2

Descriptive Statistics

	Mean	Std. Deviation	N
Physical_Risk	2.8183	1.11752	443
Financial_stability	2.8279	1.17712	443

Correlations

		Physical_Risk	Financial_stability
Physical_Risk	Pearson Correlation	1	.913**
	Sig. (2-tailed)		<.001
	N	443	443
Financial_stability	Pearson Correlation	.913**	1
	Sig. (2-tailed)	<.001	
	N	443	443

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Between Physical Risk and Financial Stability

Descriptive Statistics:

1. **Physical Risk Mean:** 2.8183 (Moderate)
2. **Financial Stability Mean:** 2.8279 (Moderate)
3. **Standard Deviation:** Around 1.1, suggesting moderate dispersion.

Correlation Analysis:

1. **Pearson Correlation (r = 0.913) → Very strong negative correlation** between **Physical Risk** and **Financial Stability**.
2. **Significance Level (p < 0.001)** → Statistically significant.
   Interpretation: Higher physical climate risks (e.g., natural disasters, extreme weather) **negatively impact financial stability**, suggesting that institutions or economies facing greater climate risks have lower financial stability.

Correlation Hypothesis for H3

Descriptive Statistics

	Mean	Std. Deviation	N
Transition_Risk	2.6749	1.09355	443
Systematic_risk_levels	2.8375	1.16236	443

Correlations

		Transition_Risk	Systematic_risk_levels
Transition_Risk	Pearson Correlation	1	.847**
	Sig. (2-tailed)		<.001
	N	443	443
Systematic_risk_levels	Pearson Correlation	.847**	1
	Sig. (2-tailed)	<.001	
	N	443	443

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Hypothesis for H4

Descriptive Statistics

	Mean	Std. Deviation	N
Financial_interconnectedness	2.8617	1.24021	443
Systematic_risk_levels	2.8375	1.16236	443

Correlations

		Financial_interconnectedness	Systematic_risk_levels
Financial_interconnectedness	Pearson Correlation	1	.905**
	Sig. (2-tailed)		<.001
	N	443	443
Systematic_risk_levels	Pearson Correlation	.905**	1
	Sig. (2-tailed)	<.001	
	N	443	443

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Hypothesis for H5

Descriptive Statistics

	Mean	Std. Deviation	N
Financial_interconnectedness	2.8617	1.24021	443
Financial_stability	2.8279	1.17712	443

Correlations

		Financial_interconnectedness	Financial_stability
Financial_interconnectedness	Pearson Correlation	1	.923**
	Sig. (2-tailed)		<.001
	N	443	443
Financial_stability	Pearson Correlation	.923**	1
	Sig. (2-tailed)	<.001	
	N	443	443

**. Correlation is significant at the 0.01 level (2-tailed).

REGRESSION

1. Regression Hypothesis for H1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.847[a]	.718	.717	.61801	.718	1122.551	1	441	<.001

a. Predictors: (Constant), Transition_Risk

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	428.744	1	428.744	1122.551	<.001[b]
	Residual	168.434	441	.382		
	Total	597.178	442			

a. Dependent Variable: Systematic_risk_levels

b. Predictors: (Constant), Transition_Risk

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.428	.078		5.515	<.001
	Transition_Risk	.901	.027	.847	33.504	<.001

a. Dependent Variable: Systematic_risk_levels

2. Regression Hypothesis for H2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.913[a]	.834	.834	.47970	.834	2220.483	1	441	<.001

a. Predictors: (Constant), Physical_Risk

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	510.959	1	510.959	2220.483	<.001[b]
	Residual	101.479	441	.230		
	Total	612.438	442			

a. Dependent Variable: Financial_stability

b. Predictors: (Constant), Physical_Risk

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.116	.062		1.880	.061
	Physical_Risk	.962	.020	.913	47.122	<.001

a. Dependent Variable: Financial_stability

3. Regression Hypothesis for H3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.847[a]	.718	.717	.61801	.718	1122.551	1	441	<.001

a. Predictors: (Constant), Transition_Risk

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	428.744	1	428.744	1122.551	<.001[b]
	Residual	168.434	441	.382		
	Total	597.178	442			

a. Dependent Variable: Systematic_risk_levels

b. Predictors: (Constant), Transition_Risk

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.428	.078		5.515	<.001
	Transition_Risk	.901	.027	.847	33.504	<.001

a. Dependent Variable: Systematic_risk_levels

4. Regression Hypothesis for H4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.905[a]	.819	.819	.49444	.819	2001.734	1	441	<.001

a. Predictors: (Constant), Financial_interconnectedness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	489.366	1	489.366	2001.734	<.001[b]
	Residual	107.812	441	.244		
	Total	597.178	442			

a. Dependent Variable: Systematic_risk_levels

b. Predictors: (Constant), Financial_interconnectedness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.410	.059		6.925	<.001
	Financial_interconnectedness	.848	.019	.905	44.741	<.001

a. Dependent Variable: Systematic_risk_levels

5. Regression Hypothesis for H5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.923[a]	.853	.852	.45234	.853	2552.118	1	441	<.001

a. Predictors: (Constant), Financial_interconnectedness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	522.203	1	522.203	2552.118	<.001[b]
	Residual	90.235	441	.205		
	Total	612.438	442			

a. Dependent Variable: Financial_stability

b. Predictors: (Constant), Financial_interconnectedness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.320	.054		5.911	<.001
	Financial_interconnectedness	.876	.017	.923	50.518	<.001

a. Dependent Variable: Financial_stability

VARIOUS OTHER TESTS

- **Reliability Test**

➔ **Reliability**

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	443	100.0
	Excluded[a]	0	.0
	Total	443	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.973	5

- **KMO and Barlett's Test**

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.983
Bartlett's Test of Sphericity	Approx. Chi-Square	11065.512
	df	276
	Sig.	<.001

- **Explore Test**

➔ **Explore**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Physical_Risk	443	100.0%	0	0.0%	443	100.0%
Transition_Risk	443	100.0%	0	0.0%	443	100.0%
Financial_stability	443	100.0%	0	0.0%	443	100.0%
Systematic_risk_levels	443	100.0%	0	0.0%	443	100.0%
Financial_interconnectedness	443	100.0%	0	0.0%	443	100.0%

- **Oneway Test**

➔ **Oneway**

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Financial_stability	Based on Mean	6.240	16	426	<.001
	Based on Median	5.780	16	426	<.001
	Based on Median and with adjusted df	5.780	16	334.850	<.001
	Based on trimmed mean	6.497	16	426	<.001

ANOVA

Financial_stability

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	518.949	16	32.434	147.793	<.001
Within Groups	93.489	426	.219		
Total	612.438	442			

- **ANOVA**

ANOVA Effect Sizes[a]

		Point Estimate	95% Confidence Interval Lower	Upper
Financial_stability	Eta-squared	.847	.818	.861
	Epsilon-squared	.842	.811	.855
	Omega-squared Fixed-effect	.841	.811	.855
	Omega-squared Random-effect	.249	.211	.269

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

CHAPTER V
SUMMARY FINDINGS (DISCUSSION ANALYSIS
DISCUSSION ANALYSIS

Demographics and Respondent Composition

The survey data captures insights from a diverse group of respondents, with representation across age groups, occupations, and residential areas.

1. The largest demographic segment (40%) consists of individuals aged 26–35, followed by 36–50 years (26.9%). This highlights the dominance of working professionals and middle-aged individuals in the study. Their awareness of climate-related financial risks is shaped by their economic responsibilities, investment in assets, and exposure to financial markets, making them a key group for climate finance policies.
2. The 18–25 age group comprises 23.7% of respondents, mainly consisting of students and early-career professionals. Their knowledge of climate finance risks is likely influenced by academic exposure, digital media, and limited financial responsibilities.
3. Older adults (50+) make up only 4.3% of the sample, suggesting that this group may be underrepresented in climate finance discussions, despite their likely reliance on retirement funds, insurance policies, and long-term investment strategies affected by climate risks.

Residential distribution is fairly balanced:

1. Urban residents make up 37.9% of the sample, suggesting greater exposure to financial markets and awareness campaigns.
2. Semi-urban respondents (35%) show moderate engagement in financial risk discussions.
3. Rural respondents (27.1%) are more vulnerable to climate risks but may lack financial literacy regarding mitigation strategies.
4. The largest occupational segment (36.1%) is private-sector employees, indicating that the corporate workforce is a key demographic for climate risk finance awareness. Business

owners (18.3%) and public sector employees (14.9%) also play significant roles, as they manage assets and deal with policy implementation.

Homemakers (17.2%), students (8.6%), and unemployed/retired individuals (5%) may have lower direct financial engagement but still experience indirect financial impacts from climate risks.

Key Implication: The dominance of working professionals and urban dwellers suggests that climate risk awareness programs should target middle-aged professionals, urban and semi-urban populations, and lower-income groups to bridge the financial literacy gap.

Climate Risk Awareness and Financial Impact Perception

Awareness of Financial Impacts of Climate Risks

The survey shows moderate overall awareness, with a mean score of 3.24 (SD = 1.29) on a 5-point scale.

1. Key Statistics:

1. **Mode = 2** (most frequently selected response), meaning low awareness is the most common perception.
2. 40.6% of respondents reported low awareness (ratings 1 & 2), while 44.5% indicated **higher awareness** (ratings 4 & 5).
3. The distribution is non-normal (**Shapiro-Wilk W = 0.854, p < .001**), meaning that awareness levels are skewed, with more respondents falling in the lower awareness categories than in the higher ones.

Key Interpretation:

1. Low awareness levels indicate that a significant portion of the population remains financially unprepared for climate risks.
2. The most common awareness level (mode = 2) is below the average, suggesting that a large portion of respondents underestimate financial risks associated with climate events.
3. **Policy Implication:** There is a need for targeted climate finance education, particularly among rural populations and lower-income groups to address the lack of awareness.
4. **Financial Burden Due to Climate Risks:** 40.2% of respondents agree that climate-related events have increased financial burdens in their communities. However, 44.7% disagree, indicating a polarized perception of financial risks.

2. Key Statistics:

[1] **Mean awareness level:** 3.24 (Moderate)

[2] **Standard deviation:** 1.29 (Moderate variation in responses)

[3] **Spearman correlation with residential area:** +0.892 (Urban respondents show significantly higher awareness than rural respondents)

Key Interpretation:

The financial burden is perceived differently based on geography and occupation. Urban professionals with higher disposable income and investment portfolios are more aware of climate financial risks, while

rural and lower-income individuals may be less informed.

A large portion of respondents do not recognize financial burdens, possibly due to government subsidies, lack of direct climate-related financial losses, or lower economic engagement.

1. **Policy Implication:** Government agencies and financial institutions should improve communication regarding climate-related financial risks and insurance options, especially in rural areas.
2. **Financial Preparedness** and Institutional Support
3. **Community Financial Resource**s and Government Support

3. Key Statistics:

1. 52.6% of respondents believe their community lacks financial resources to mitigate climate risks.
2. Only 30.2% think financial resources are sufficient for disaster recovery.
3. 56.9% believe government financial support is insufficient.

Key Interpretation:

1. Financial constraints are a major challenge for climate risk mitigation.
2. Low-income communities, particularly in semi-urban and rural areas, feel unprepared to handle climate-related financial shocks.
3. Government support is seen as inadequate, leading to distrust in policy measures.
4. Policy Implication: More transparent and accessible government financial aid programs should be implemented to improve community resilience.

Business and Private Sector Role in Climate Finance

[4] Key Statistics:

1. 56.7% believe businesses are not investing adequately in climate resilience.
2. 52.4% state that their employer has not taken financial measures to mitigate climate risks.

Key Interpretation:

Corporates are lagging in integrating climate finance into their long-term strategies.

Businesses may lack incentives or resources to invest in sustainability.

Policy Implication: Stronger corporate responsibility frameworks and tax benefits for climate-related investments should be introduced.

Personal Financial Readiness for Climate Risks

[5] Key Statistics:

1. 54% of respondents do not feel financially prepared for a climate-related disaster.
2. 49.4% have not personally invested in climate risk mitigation (e.g., property insurance, renewable energy, or flood defenses).
3. Financial constraints are the biggest challenge for 48.8% of respondents.

Key Interpretation:

A significant portion of individuals lack financial planning for climate resilience.

Insurance and other protective financial instruments are underutilized, possibly due to cost, lack of awareness, or mistrust in financial institutions.

CHAPTER VI
CONCLUSION, REFERENCES AND APPENDIX
CONCLUSION

The survey findings highlight a moderate level of climate risk awareness among respondents, but

significant gaps remain in financial preparedness for climate-related risks. While urban and higher-income groups exhibit greater awareness and financial readiness, rural populations, students, and unemployed individuals demonstrate lower engagement with climate finance measures. This disparity suggests that access to information, economic stability, and financial literacy significantly influence an individual's ability to mitigate climate risks.

The private sector's role in climate resilience remains weak, as more than half of respondents feel that businesses are not adequately investing in climate adaptation strategies. Similarly, government policies and financial aid programs are perceived as insufficient, with a majority expressing concerns about the availability and accessibility of funding for climate risk management. The lack of affordable climate-related insurance and financial support mechanisms further exacerbates financial vulnerability.

A strong correlation (+0.892, $p < .001$) between awareness and residential area confirms that urban populations have higher exposure to climate finance discussions, while a negative correlation (-0.914, $p < .001$) between employment sector and awareness suggests that lower-income and unemployed individuals are less informed about climate-related financial risks. These findings emphasize the urgent need for targeted educational campaigns, policy reforms, and financial interventions to bridge the climate finance awareness gap.

To enhance financial resilience against climate risks, governments, financial institutions, and corporations must collaborate to improve accessibility to climate finance products, increase transparency in financial aid distribution, and integrate climate risk awareness into mainstream financial literacy programs. Strengthening public-private partnerships and offering economic incentives for climate resilience investments will be crucial in fostering long-term financial stability amid increasing climate uncertainties.

SUGGESTIONS AND RECOMMENDATIONS

1. Develop targeted climate risk education initiatives for rural populations, students, and unemployed individuals using workshops, digital campaigns, and mobile applications.
2. Expand subsidies, microfinance options, and low-interest loans for climate resilience investments while simplifying application processes for financial aid.
3. Encourage businesses to invest in climate resilience through tax incentives, regulatory benefits, and corporate-sponsored climate finance solutions.
4. Establish local climate resilience funds to support vulnerable populations, finance infrastructure improvements, and provide emergency relief.
5. Improve communication, streamline application processes, and ensure financial aid reaches the most affected communities through regular policy evaluations.
6. Encourage the adoption of green bonds, catastrophe bonds, and climate risk derivatives while integrating sustainability metrics into investment decisions.
7. Promote affordable and accessible climate-related insurance by partnering with financial institutions to develop tailored policies for vulnerable communities.
8. Increase investments in early warning systems and disaster preparedness programs to minimize financial losses from climate-related events.
9. Encourage sustainable business practices by offering financial incentives for companies adopting eco-friendly infrastructure and climate adaptation strategies.
10. Strengthen international collaboration to secure funding from global climate finance mechanisms, ensuring developing regions receive adequate support for resilience initiatives.

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