

# Research on the Driving Forces and Improvement Strategies of the Global Financial System Transformation: Based on the Dual Pressures of Emerging Economies and Climate Change

Zhen Zhang

Taiyuan Foreign Language Science and Technology Experimental School, Taiyuan, Shanxi,  
030012, China

baizhenkun@ldy.edu.rs

**Abstract.** Climate change poses significant challenges to global economies, with developing and emerging markets particularly vulnerable. This paper delves into the economic impacts on key sectors such as agriculture, manufacturing, and services, with a special focus on Sub-Saharan Africa, a region highly exposed to climate risks. The research also explores the socioeconomic disparities in health outcomes and the unequal participation in carbon reduction efforts, emphasizing the urgent need for equitable climate policies that ensure fair participation and benefits across different social groups. The study further addresses critical issues in water management, especially in data-scarce regions, where the lack of reliable information hampers effective resource allocation and policy-making. Additionally, the paper analyzes corporate responses to economic policy uncertainty in China, investigating how businesses adapt to both environmental and regulatory changes. Based on these findings, the research proposes practical solutions aimed at promoting equitable climate participation, improving water management systems, and enhancing corporate responsibility towards sustainability. This paper contributes to the development of more inclusive and resilient climate strategies, offering insights that are not only essential for policymakers but also for businesses seeking to navigate the growing challenges posed by climate change.

**Keywords:** Climate Change, Economic Policy, Socioeconomic Disparities, Water Management, Corporate Responsibility.

## 1. Introduction

There are serious difficulties that the world financial system is dealing with because of two main reasons: the emergence of developing economies and the growing need to deal with climate change. The number of shares of global financial flows in emerging markets, including China, India, and Brazil, is currently high. For example, the Belt and Road Initiative of China has converted financial relations worldwide by billions of dollars into infrastructure projects [1]. China made up almost 20 percent of the world's economy by 2020, which shows that it is currently one of the main players in international finance [2]. Although there are new investment opportunities as a result of this economic dynamism, there are also weaknesses in the global financial system.

Simultaneously, climate change presents unprecedented risks. According to Callahan and Mankin, the top five greenhouse gas emitters (China, the U.S., Russia, Brazil, and India) have collectively caused over \$6 trillion in income losses globally due to climate-related damages [3]. The impact of methane emissions, one of the most potent greenhouse gases, has been highlighted in recent studies. Aleshina et al. suggest that reducing methane emissions by 50% and increasing carbon prices to \$500 per ton could limit global warming to 1.5°C by 2100 [4]. These dual pressures underscore the need for a resilient global financial system that can integrate climate risks and opportunities.

The rise of ESG (environmental, social, and governance) investments and sustainable financing is reflected in this movement. ESG-related assets are estimated to be more than US\$53 trillion by the year 2025, which is driven by the need for investors for sustainability [4]. It has also been emphasized that the value of financial systems, such as green bonds and carbon pricing, is important to achieve [4].

In recent literature, the economic impacts of climate change and carbon emissions have been assessed through multiple lenses. Callahan and Mankin explore the national attribution of climate damages, revealing that the top emitters—such as the United States, China, and Russia—are responsible for significant economic losses in low-emitting nations. Their study quantifies \$6 trillion in income losses from global warming, emphasizing the inequality in damage distribution [3]. Similarly, Sofia Aleshina et al. analyze methane emissions using the DICE model, arguing that controlling methane can significantly lower global temperatures, allowing for more ambitious climate goals. Their findings suggest a carbon pricing model that quadruples current levels could help achieve the 1.5°C temperature target. The overall economic implications indicate that without major emission reductions, the disproportionate burden on lower-income countries will continue to exacerbate economic disparities [4].

The majority of the research that is currently done has either on developing or on the climate of the economy, although there hasn't been much done on them or about the relationship between them, especially when they combine to affect the financial systems of the world in particular. The purpose of this essay is to fill this gap by looking at how developing economies and climate risk are changing the way that financial institutions are doing worldwide, with some recent models of climate and economics providing some information for the future of these two countries [4]. Few examine the interrelationships of these variables in the financial system because there are so many different studies that analyzed how either the new markets or the climate are affecting the world's financial system. The purpose of this paper is to help fill this gap by looking into how the rapid increase in the number of new and emerging markets is also a way of changing the world of finance jointly with the immediate need to deal with climate [4].

The current situation for the global financial system will be evaluated in this paper, with an emphasis on the effects of emerging economies and climate change. After that, it will examine how these forces have both positive and negative effects on financial stability, as well as suggest ways to improve the financial system's resilience. The study will also examine how carbon pricing and methane emission reduction can both contribute to environmental and economic sustainability based on data from sources such as Callahan and Mankin [4].

## 2. Case Description

As the developing market has risen, there were huge changes to the world's financial system, which was the increasing need to deal with the changing environment and to cope with the change in climate and emerging markets such as China, India, and Brazil became the important actors to deal in the global finance which leads to new investment flows and the market. China's BRI has only mobilized almost a trillion in infrastructure investment, which has affected the world [1]. Meanwhile, there are serious issues related to the effects of climate change. According to recent estimates, by 2050, the amount of global GDP might be reduced by up to 10% if the country is not being affected by the same amount of climate change [5]. There are important economic effects of carbon emissions; these include the need for the economy to support the reduction of climate-related hazards by financial systems that are currently being developed by green financing and price [4]. According to Aleshina et al., lowering methane emissions, which include a strong greenhouse gas, may drastically slow global warming [4].

The relationship that exists in the current situation is depicted in this example, which also shows that there are both opportunities and problems with the financial system as a whole in the world when it comes to developing countries that have been in the area of the economy [5].

### **3. Analysis of the Problem**

#### **3.1. Positive Influences Identified**

##### **3.1.1 Climate change impacts the global financial system**

Climate change has introduced both challenges and opportunities for the global financial system. One of the positive influences is the rising importance of green finance, which encourages investment in sustainable development projects. Green finance mechanisms, such as green bonds and sustainability-linked loans, are becoming essential tools for governments and corporations to raise capital for projects that mitigate climate risks. For instance, Southeast Asia has witnessed significant developments in green finance, supported by initiatives that promote economic integration and financial inclusion [6]. These efforts are not only enabling countries to meet their climate targets but also driving economic growth by creating jobs in renewable energy sectors and sustainable infrastructure.

Framework also catalyzes the expansion of carbon markets, in particular, the response of the international community to climate change through agreements such as the Paris Accord. China's (PCI)scheme is a model of how market mechanisms can encourage people and companies to cut carbon emissions by providing financial incentives for sustainable practices [7]. Such schemes are developed in a way that is a change in the financial system toward putting more emphasis on long-term environmental sustainability than on short-term economic benefits, which is a step forward for countries to align their financial policy with the global climate goals, thus reducing the total carbon footprint, and also encouraging the innovation of low-carbon technologies.

Another positive influence is the increased recognition among investors and financial institutions of climate-related risks and opportunities. This awareness has led to the integration of environmental, social, and governance (ESG) factors into investment decisions, which has increased the need for a more responsible and long-lasting financial system. Because investors want companies to be more transparent and accountable about the effects of environmental damage, companies are encouraged to use more sustainable business models, which helps the global financial system to be resilient against climate shocks.

##### **3.1.2 The effect of the economic system on the global financial system**

The role that economic integration has to play in increasing financial resiliency in the face of climate challenges, in particular in developing countries, is very important [6]. In the case of regions such as ASEAN, they have been trying to better solve the economic effects of the environment by making it easier to participate in the activities of border trade and facilitating cooperation in the environment [6]. As more resources and technologies were being traded and thus the development of cleaner energy and more infrastructure, this has also been done by eliminating trade barriers and the promotion of regional cooperation, which have not only reduced the environmental effect of the increase in the economy but also created more opportunities for the sustainable development.

Additionally, because a country in an area cooperates to achieve the global climate targets, economic integration promotes the use of international best practices in sustainability. For example, the ASEAN's commitment to integrate green finance into its economic system has hastened the shift to a low-carbon economy, which is a process that has been accelerated by ASEAN's efforts to integrate it into its economic framework. Economic integration helps to reduce the vulnerability of economies to climate-related disruptions and increases the financial stability of the economy by linking financial markets with environmental goals.

#### **3.2. Negative Influences Identified**

##### **3.2.1 Climate change challenges to the global financial system**

Despite the improvements in green finance and economic integration, climate change presents enormous risks to the global financial system, particularly in vulnerable sectors, including agriculture. In places such as Sub-Saharan Africa, climate variability has led to frequent droughts, floods, and

other extreme weather events, resulting in decreasing agricultural output [8]. This fall not only affects food security but also impedes entire supply chains, with ripple effects on manufacturing, trade, and services. The economic vulnerability of agriculture-dependent countries underlines the urgent requirement for financial systems to adapt to climate hazards.

Moreover, the physical hazards of changing the climate, for example, as the sea level increases, the number of natural disasters and the nature of the weather, are jeopardizing the environment and property around the globe. Such dangers result in huge liabilities for the insurers, companies, governments, and insurers, which causes the financial markets to have a lot of volatility. For instance, extreme weather events have created huge damage to important infrastructure, which has resulted in a re-evaluation of the exposure to climate risks in the financial system [9]. Such occurrences are very volatile, which makes financial planning and risk management difficult, especially in those countries that have limited resources for the use of climate adaptation.

In locations, there is little data, such as the Peruvian Andes, long-term financial planning is complicated by the absence of precise climate projections [9]. Inadequate data means that firms and legislators have difficulty putting in place successful climate adaptation plans, which puts the economy in danger of unexpected shocks. Economic instability may result from the inability to implement flexible financial policies in response to these hazards, especially in sectors that are highly dependent on natural resources.

Additionally, there are serious financial difficulties for industries with high reliance on fossil fuels as they transition to a low-carbon economy. Industries, including oil, gas, and coal, have greater costs and lower profitability because governments implement tighter environmental laws and carbon pricing systems. As demand for cleaner energy sources increases, this change might result in asset stranding, where investments in carbon-intensive industries lose value. Because of the enormous financial ramifications of this change, trillions of dollars in assets run the risk of being devalued, which raises the possibility of financial markets becoming unpredictable all over the world.

### **3.2.2 Economic policy and corporate responses in emerging economies**

In addition to the obvious dangers brought about by climate change, the difficulties facing the global financial system are made worse by the uncertainty in economic policy in developing countries. Companies in a nation such as China need to deal with quickly altering economic policies, which can lead to companies looking to put long-term sustainability plans into place [10]. According to Zhong et al., state-owned businesses (SOEs) are better suited to react to changes in economic policy because of their strong ties to the government, which enables them to obtain the resources and information they need to adjust to new laws [10]. However, to reduce the risks associated with economic policy uncertainty, private companies frequently lack these linkages and might turn to non-transparent practices, such as bribery.

A more widespread problem of socioeconomic inequality in emerging markets is highlighted by this divergence in corporate strategies. While smaller firms and low-income people are disproportionately affected, large firms and high-income groups are better able to manage the financial risks associated with climate change. Wei et al. point out that high-income participants are less likely to implement sustainable practices if they do not have any focused incentives or policy changes, which exacerbates socioeconomic inequality even more [7]. The difficulty of establishing equitable financial policies that encourage sustainability in all areas of society is highlighted by the reluctance to participate in low-carbon activities.

Since the financial strain on converting to a low-carbon economy will disproportionately affect the most vulnerable groups, the lack of attention to these differences may make it more difficult to fight the effects of climate change on a global scale. Furthermore, because of the reliance on private enterprises that use non-market tactics, such as bribery, the efficacy of climate policy is weak, and there are additional hazards to financial stability. The ability of emerging markets to adjust to climate threats and adopt sustainable financial practices will be crucial for the long-term stability of the global financial system because they are still important to the world economy as they grow.

## **4. Suggestions**

### **4.1. Strengthening Financial Incentives for Low-Carbon Adoption**

One of the primary strategies for addressing the negative impacts of climate change on the financial system is to strengthen financial incentives for adopting low-carbon behaviors. In China's PCI scheme, Wei et al. suggest implementing tiered incentives to encourage greater participation across all income levels [7]. This approach would provide more substantial rewards for lower-income households adopting sustainable practices while ensuring that high-income participants are sufficiently motivated to engage in carbon reduction efforts. Additionally, expanding subsidies for renewable energy technologies, such as solar panels and electric vehicles, can further promote the widespread adoption of low-carbon solutions across socioeconomic groups.

### **4.2. Enhancing Water Resource Management in Climate-Sensitive Regions**

To mitigate the financial risks posed by climate change, particularly in regions vulnerable to water scarcity, governments must invest in adaptive water management strategies. Muñoz et al. emphasize the need for advanced data collection and modeling techniques, such as remote sensing, to improve water resource management in data-scarce regions like the Peruvian Andes [9]. Governments should prioritize the development of local infrastructure that supports sustainable water usage, such as rainwater harvesting systems and community-led water governance initiatives. These strategies will reduce the financial burden of water scarcity while promoting long-term economic stability in affected regions.

### **4.3. Establishing Transparent Corporate Governance Frameworks**

To solve the problem of economic policy uncertainty, it is necessary to create clear corporate governance frameworks that encourage ethical business practices. To reduce non-transparent behaviors like bribery, which in turn impede the efficacy of climate policy, governments in developing markets need to put more strict rules into place. Zhong et al. note that although private firms need to be encouraged to implement transparent and sustainable practices, SOEs in China already benefit from close ties to the government [10]. By lowering the financial risks associated with economic policy uncertainty, corporate social responsibility (CSR) initiatives might help close this gap by encouraging sustainability.

## **5. Conclusion**

### **5.1. Key Findings**

This essay has studied how climate change and the global financial system are related in complicated ways; it also examines both positive and negative factors. On the good side, there are chances for sustainable development in areas such as Southeast Asia that have seen the emergence of green finance and economic integration. The detrimental effects, however, are a serious danger to the financial stability of the world because of these negative effects, especially those that are on the underprivileged, such as those in agriculture and areas with little access to data. Furthermore, attempts to counteract climate change are made more difficult by socioeconomic inequalities and corporate responses to the uncertainty of economic policy in developing countries.

### **5.2. Research Significance**

This research is of great importance because it examines the various problems that climate change has brought about to the financial system in great detail. This research offers important information about how regional and global financial markets can adjust to the hazards associated with climate change by addressing both economic and policy-driven aspects. The results highlight the need for

climate policy that is both sustainable and fair, which takes into account socioeconomic differences and encourages the broad adoption of low-carbon behaviors.

### 5.3. Limitations and Future Research

This study mainly uses secondary research to make an important contribution when talking about financing and climate change; however, the study also mostly uses secondary data as the basis of the study and should include the main information of the secondary data in this research for further study of the behavioral drivers of the climate-related decision to the future, and the main research should include primary data collection, including surveys, interviews, so as to understand the behavioral drivers of decision about climate-related decisions, and more studies should be done in the long term to study the effectiveness of the proposed solution, especially in areas which are most at the risk of being affected by the climate.

## References

- [1] Bank, Asian Infrastructure Investment. Asian Infrastructure Investment Bank: Articles of Agreement. Beijing: AAIB, 2015.
- [2] Duan, Hongbo, Sheng Zhou, Kejun Jiang, Christoph Bertram, Mathijs Harmsen, Elmar Kriegler, Detlef P. Van Vuuren et al. Assessing China's efforts to pursue the 1.5 C warming limit. *Science*, 2021, 372 (6540): 378-385.
- [3] Callahan, Christopher W., and Justin S. Mankin. National attribution of historical climate damages. *Climatic Change*, 2022, 172 (3): 40.
- [4] Aleshina, Sofia, Laura Delgado-Antequera, and German Gamar. Assessing the economic implications of carbon emissions on climate change: Estimating the impact using methane-adjusted DICE model. *Structural Change and Economic Dynamics*, 2024, 71: 35-44.
- [5] Guo, Jessie, Daniel Kubli, and Patrick Saner. The economics of climate change: no action not an option. Swiss Re Institute, 2021.
- [6] Le Quoc, Dinh. The relationship between digital financial inclusion, gender inequality, and economic growth: dynamics from financial development. *Journal of Business and Socioeconomic Development*, 2024.
- [7] Le Quoc, Dinh. The relationship between digital financial inclusion, gender inequality, and economic growth: dynamics from financial development. *Journal of Business and Socioeconomic Development*, 2024.
- [8] Chamma, Desalegn Dawit. Climate change and economic growth in sub-Saharan Africa: an empirical analysis of aggregate-and sector-level growth. *Journal of Social and Economic Development*, 2024: 1-33.
- [9] Muñoz, R., S. A. Vaghefi, F. Drenkhan, M. J. Santos, D. Viviroli, V. Muccione, and C. Huggel. Assessing Water Management Strategies in Data-Scarce Mountain Regions under Uncertain Climate and Socioeconomic Changes. *Water Resources Management*, 2024: 1-18.
- [10] Zhong, Xi, Ge Ren, and XiaoJie Wu. Corporate philanthropy and bribery as distinctive responses to economic policy uncertainty: Do state-owned and private firms differ?. *Asia Pacific Journal of Management*, 2024, 41 (2): 641-677.