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A LOOK AT HOW CLIMATE BONDS CAN HELP EMERGING MARKETS GROW THEIR ECONOMY- AN ANALYSIS BASED ON NEWLY INDUSTRIALISED COUNTRIES (NICS)

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Original Article

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Abstract

This current study investigates the key causes that have been driving the green bond market over the past several years, as well as the constraints that prohibit emerging nations from accessing this market. A greater awareness of climate change among investors appears to be supporting the development of green bonds, which appear to be a reality in both developed and developing nations. It also indicates that climate bonds are becoming more prevalent in the financial market. On the other hand, the market in developing countries is still in its early phases, and it appears that its full potential is not being fully appreciated. The key difficulties inhibiting the growth of green bonds in developing nations include the lack of appropriate institutional structures for managing climate bonds, the issue of minimum size requirements, and the high transaction costs associated with issuing these bonds. These difficulties are preventing the growth of climate bonds in developing countries. Overall, the current study focuses on specifying investment strategies for climate bonds that are essential for NICs. The study focusses on establishing a relationship among climate bonds and the economic growth of NICs, using data from 2014 to 2023, with respect to the Great British Pound (GBP), Euro (EUR), Chinese Yuan (CNY), and Japanese Yen (JPY). The integration of the data resulted in a model analysis using the Panel Auto Regressive Distributed Lag (PARDL), which ultimately demonstrates that EUR- and CNY-issued climate bonds have the most significant impact on developing economies. This will ultimately help a country to concentrate on sustainable economic development built on the climate finance bonds, giving priority in these two currencies. Furthermore, it will ultimately reduce the need for unnecessary foreign aid – an external burden for growing economies.

Keywords: Climate Bond, Currency, Economic Growth, NIC

Introduction

Bonds are financial products that have a fixed income and are tied to climate change solutions. Climate bonds are called green bonds [1, 2] and sustainable bonds [3, 4]. They are put into circulation to raise funding for climate change solutions, such as activities connected to adaptation or mitigation of the effects of climate change. These could be projects that are intended at lowering greenhouse gas emissions, such as clean energy or energy efficiency, or they could be projects that are targeted at adapting to climate change, such as creating flood defences or providing assistance in adjusting to rising floods. Climate Bonds, much like traditional bonds, can be issued by businesses, governments, or multinational institutions all over the world. This scenario is no different from the situation with conventional bonds. This conclusion is according to Flaherty et al. [5] and Dutta et al. [6]. The organisation that issued the bond guarantees

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its repayment over a period that has been established in advance, in addition to assigning a rate of return that is different from the standard rate.

The majority of climate bonds are use-of-proceeds bonds, meaning the issuer guarantees investors that all funds received will be allocated only to specific climate-related programmes or assets. This type of assurance is particularly important for investors who are concerned about the environment. Perry [7] and Stiglitz [8] make this point. Programs that provide help for climate mitigation or facilities that generate renewable energy could fall into this category. When it comes to contributing to the creation of solutions to climate change, investors need to be conscious of their responsibilities in the 2017 edition of Puaschunder [9]. Because of this, the immediate need to reduce the effects of climate change has drawn attention to the necessity of focussing on private financing. Within the realm of climate finance, climate bonds are proving to be an extremely useful instrument, and they are receiving a significant amount of consideration from both investors and environmentalists. Climate bonds are essentially infrastructure bonds that have been adapted particularly to finance climate solutions [10]. An issuer can decide the scope of projects eligible for financing with broad or specific usage.

The climate bonds can be issued in different countries using different currencies. The current study chooses newly industrialised countries (NICs) for analysis [11]. In light of the fact that industrialization has been a driving force behind the observed trajectory of economic growth, it has resulted in increased pressure on the use of energy resources among the newly industrialised economies in the world. There are various studies that investigate the long-term effects of natural resources and globalisation on environmental degradation in non-industrialized countries (NICs). Additionally, many studies in the empirical literature have addressed the same issue by controlling for distributional heterogeneity using the innovative Method of Moments Quantile Regression and various other techniques. To provide guidance to policymakers and the authority of the NICs, the outcomes that were observed from the simulations were quite significant and highly suggestive from the past studies.

Climate bonds are one of the most prominent financial instruments in the fight against climate change. These niche debt securities are created to fund projects that provide environmental benefits – from renewable energy, transport systems, and infrastructure through efficient energy uses. Given the pressing global need to reduce carbon emissions, climate bonds offer investors a chance to not only support environmentally friendly projects but also reap financial benefits, thereby benefiting both ecological systems and investment portfolios.

Emerging markets are rapidly growing economies transitioning towards industrialization. They offer exciting investment opportunities but come with risks like political instability and currency fluctuations. Despite challenges, these markets are becoming increasingly important in the global economic landscape. Because these markets are often vulnerable to climate change and significantly contribute to emissions, they also play a crucial role in combating climate change. Climate finance, including bonds, helps these nations balance growth with environmental responsibility.

Nevertheless, the ever-increasing demand for energy and the requirements for resources are essential for the progression of the industrialization process. This issue of pollution and ecological degradation is a major concern in discussions about the environment [12, 13]. As global greenhouse gas emissions rise due to deepening globalisation, countries prioritise economic enrichment over environmental sustainability.

Newly industrialised countries are those that have recently experienced significant economic development and modernisation. Such countries have experienced successful transitions from a mostly agricultural economy to more diversified manufacturing-based systems. Most of the prominent NICs were South Korea, Singapore, and Taiwan. Some more recent NICs are Malaysia and Thailand. In general, NICs have experienced dramatic improvements in living standards, education, and technological capacity. However, rapid industrialisation brings challenges such as increasing inequality, environmental pollution, and unsustainable production practices.

The newly industrialised countries' relationships are essentially tied to climate bonds. The Climate bonds are a new opportunity for the NICs to finance environmentally friendly infrastructure and green technologies that might be used to bypass traditional, more polluting versions of industrial activity. Climate bonds can attract foreign investment, signal commitment to global climate goals, and make countries world leaders in the green economy. This approach supports environmental benefits and increases the resilience of NICs to risks associated with climate change and opens up new job opportunities in emerging green sectors. As such, the interlink between NICs and climate bonds is an intriguing relationship between economic development, environmental stewardship, and innovative finance.

There are two primary models of NICs for their growth: those from Asia and those from Latin America. The Asian model is primarily focused on international markets, whereas the Latin American model is focused on import substitution. Additionally, the characteristics of NICs include high rates of economic development, attractiveness for investment due to low-cost labour, policies that promote education and quality work, and dynamism in the scientific and technical sectors of their economies. It explains the influence of different currencies' climate bonds on the economic growth of NICs. It also tries to evaluate the possibility that green bonds may be used to aid the mobilisation of financial resources for the purposes of adaptation and mitigation in NICs.

The previous studies were based on analysing the role of climate finance initiatives in the growth of the respective nations. The current study specifically identifies how currency-specified climate finance bonds can contribute to the economic growth of nations.

The article is divided as follows: Section 2 explains the review of the literature. Section three investigates the data analysis. Section four analyses the interpretation, and part five concludes the study.

Literature Review

Green bonds have developed as a crucial financial instrument for tackling climate change mitigation and adaptation, particularly in Newly Industrialized Countries (NICs). This is especially true in the finance sector. These bonds are increasingly considered an effective mechanism to fund environmental projects without imposing significant financial burdens on future generations. However, their adoption and impact in NICs face unique challenges, including institutional shortcomings, high transaction costs, and market dynamics. This review examines the role of green bonds in NICs, considering various studies on their effectiveness, challenges, and potential for economic growth.

Green Bonds as Climate Financing Tools

The purpose of green bonds is to provide funding for initiatives that will have a positive influence on the environment. In the article, Gevorkyan and colleagues believe that green bonds provide a more equitable method of financing initiatives to mitigate the effects of climate change by distributing the financial burden across multiple generations [5]. These bonds provide immediate funding for climate investments, with the repayment deferred to future beneficiaries, thus creating a sustainable financing model for long-term climate goals. However, for this model to succeed in NICs, careful macroeconomic evaluation is necessary to guarantee that these instruments do not disrupt national economic stability.

Fatica et al. [14] point out a challenge unique to NICs: green bonds issued by financial institutions typically do not carry a yield premium, making it difficult for investors to directly associate the bonds with specific environmental projects. This creates a disconnect between the financial and environmental objectives of green bonds, which could undermine their effectiveness in emerging markets. For NICs, where institutional and financial market maturity may vary, this gap is even more pronounced.

The Dynamics of the Market and Green Bonds

The integration of green bonds inside broader financial markets has major consequences for their efficacy. Reboredo [15] shows that green bonds are highly correlated with corporate and Treasury bond markets but offer limited diversification benefits to equity investors. This suggests that green bonds may be better suited for fixed-income

investors, a group that tends to be more focused on stable returns than on equity growth. Furthermore, Reboredo and Ugolini [16] confirm that while green bonds receive price spillovers from fixed-income and currency markets, they are less influenced by equity markets, reflecting the relatively stable nature of the instrument and its alignment with debt-based rather than equity-based financing structures.

Green Bonds in Developing Countries

The challenges of adopting green bonds in developing countries, including NICs, are substantial. De Deus et al. [17] examine the green bond markets in China and Brazil, two of the largest economies among emerging markets. While China's more developed financial system has enabled the growth of green bonds, Brazil's market faces significant hurdles such as high transaction costs and a lack of institutional infrastructure to support green financing. Similarly, Banga [18] highlights that many NICs encounter barriers such as these, as well as issues related to political instability and limited access to capital markets. Banga suggests that multilateral development banks (MDBs) can play a critical role in overcoming these barriers by providing technical assistance and bridging the financing gap.

Climate Finance Policies and Green Bonds

When it comes to the success of green bonds in NICs, the policies of the government are significant. Dafermos et al. [19] investigate the possibility of using green quantitative easing (QE) as a policy instrument to encourage environmentally conscious investments and reduce the risk of financial instability in non-developed countries (NICs). Green QE could enhance the flow of capital towards sustainable projects by offering favourable financing conditions, thereby accelerating the transition to a low-carbon economy.

Bhandary et al. [11] examine the role of climate finance policies in facilitating green bond issuance in NICs. They argue that successful climate finance policies should be aligned with clear green investment goals and supported by strong governance structures. For green bonds to mobilise effectively, governments must ensure regulatory clarity, transparency, and an enabling environment that encourages investment in green projects. Without these foundations, the market for green bonds in NICs will likely remain underdeveloped.

Prior fields of research focus on examining the impact of climate financing that measures the development of various nations. The present study identifies the impact of currency-specific climate finance bonds in promoting the economic growth of developing economies. The objectives, thus, of the study are as follows:

a. To find out the impact of climate finance bonds issued in the currency (CNY, EUR, GBP, JPY) on the growth of the economies, specifically NICs.
b. To find out the short-run and long-run impact details of the same.

The hypotheses that have been formed based on the objectives are as follows:

H_{01}: There is no long-run impact of CNY, EUR, GBP, or JPY on the economic growth of NICs.

H_{02}: There is no short-run impact of CNY, EUR, GBP, or JPY on the economic growth of NICs.

Results

Based on the data ranging from 2014 to 2023, the study concentrates on building a relationship among climate bonds based on the economic growth of NICSs with respect to the Great British Pound (GBP), Euro (EUR), Chinese Yuan (CNY) and Japanese Yen (JPY). Using the Panel Auto Regressive Distributed Lag (PARDL) method, the study finds that climate bonds issued in EUR and CNY are efficient enough to influence the overall growth of NICs. Furthermore, it focuses on investigating the possibility of highly influential climate bonds issued in different other currencies, such as GBP and JPY.

The study considers various currencies that issue climate finance bonds, including the Great Britain Pound (GBP), Euro (EUR), Chinese Yuan (CNY), and Japanese Yen (JPY), sourced from the Climate Bonds Initiative official website, while economic growth data is obtained from the World Bank website. The results of the unit roots are presented in Table 1.

Table 1: Unit Root Analysis

Method	Variable Name	Statistic	Prob
	l(CNY)		
Lin, Levin, and Chu t* both		23.4124*	0.00
1m, Pesaran, and Shin W-statistic		-10.6841*	0.00
ADF for the Fisher Chi-square		117.03*	0.00
PP-Fisher Chi-square		33.229*	0.01
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Indicates the value as significant at 10 percent level

Table 1 proves that the data has integration of I (0), I (1) and hence, the choice of the model remains as Panel Auto Regressive Distributed Lag (PARDL) model.

Table 2: PARDL (1, 1, 1,1,1)

Long Run Equation				
Variable	**Coeff**	**Std. Error**	**t-Stat**	**prob.**
***l*(CNY)**	0.062833*	7.46606	8417.	0.00
***l* (EUR)**	0.763773*	1.98E-05	38639	0.00
***l* (GBP)**	-0.444067*	4.10606	-1083	0.00
***l* (JPY)**	-0.157903*	1.85806	-8523	0.00

Indicates the value as significant at 10 percent level

Table 3: PARDL (1,1,1,1,1)

Short run Equation				
Variable	**Coeff**	**Std. Error**	**t-Stat**	**prob.**
ECT_{-1}	-0.934441*	0.511070	-1.82	0.076
Δ*l*(CNY)	-0.128451*	0.047935	-2.67	0.011
Δ*l*(EUR)	-0.223289	0.339696	-0.65	0.515
Δ*l*(GBP)	-0.085321	0.290805	-0.29	0.771
Δ*l*(JPY)	-0.271161	0.260522	-1.04	0.305
C	-0.20037	0.201414	-0.99	0.327

Indicates the value as significant at 10 percent level

Data Interpretation

The data analysis is effective enough to find out the positive long-run impact of the Chinese Yuan (0.062833) and Euro (0.763773) on the issuance of the climate finance bonds, as it helps in driving the economic growth in NICs. In the short run, the model demonstrates a 93 percent probability of achieving long-run stability in its equilibrium. Furthermore, in the short run, the Chinese Yuan is effective enough to influence the climate bonds. The distinction between the short-run and long-run in the study helps identify which types of currency-specific bonds economies should prioritise. The error correction term shows that there is a 93 percent chance of moving from unstable short-run disturbances to stable long-run economic status.

The current results of the study indicate that climate financing bonds are the most effective financial instruments for generating capital aimed at initiatives that produce beneficial environmental or climate outcomes, thereby promoting their advantages over traditional bond investments. These bonds are essential for mobilising resources to address climate change while simultaneously promoting economic growth. As the global economy progressively shifts towards sustainability, climate finance bonds are becoming an essential instrument for connecting financial institutions with environmental objectives.

Discussion

Climate financing denotes funding—sourced from public, private, and alternative channels—at local, national, or international levels, aimed at facilitating climate change mitigation and adaptation initiatives [20, 21]. With the escalation of the global climate crisis, climate financing has become a crucial instrument for facilitating the transition to a low-carbon, climate-resilient future. The current analysis indicates that bonds denominated in Chinese yuan (CNY) and the Euro (EUR) are among the most efficacious vehicles for fostering economic growth [22]. These currency-denominated bonds function as effective instruments for capital mobilisation and exhibit significant promise for advancing sustainable development goals. The proceeds from these bonds are progressively being directed towards initiatives designed to alleviate climate-related concerns [23].

This encompasses investments in renewable energy efforts, eco-friendly infrastructure, sustainable transportation, and more projects aimed at improving environmental resilience [24, 25]. Utilising the financial robustness and global prominence of the Chinese yuan and Euro, these bonds are crucial in harmonising economic growth with environmental accountability. By doing so, they promote a low-carbon economy, mitigate the detrimental effects of climate change, and enhance the long-term viability of both national and global economies.

Conclusion

The current study proposes to focus on the effectiveness of climate finance bonds for promoting economic growth in developing economies. By doing that, it finds bonds issued in Chinese yuan and euros are the most proficient in fostering the growth of the economies. The outcome of these currency-issue bonds will focus on mitigating different climate-risk-related activities. Although climate finance bonds operate similarly to conventional bonds, issuers—including governments, municipalities, and businesses—raise funds from investors specifically to address climate-related risks. The distinctive feature of climate bonds is that the capital generated is exclusively allocated for initiatives that promote environmental sustainability. These encompass primarily renewable energy initiatives and energy-efficient structures. Thus, the allure of climate bonds lies in two main advantages: they provide competitive yields for investors while also supporting environmental initiatives that can mitigate the impacts of climate change and promote sustainability in long-term development.

Conflict of Interest

This research did not receive any funding, which may have derived advantages from the results. There is no sponsorship that played a part in the study's design, data collection, analysis, or publication decisions.

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