

# The Relationship between Technology for the Development of Green Finance and Economic Growth: A Comparison Study between Developed and Middle East Countries

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**Abstract:-** This review considers the impact of green economy on the economic growth, the methodology use many different and various indicators, to explain the role of green economy in China, Egypt and Turkey , the paper showed that increasing of the green finance can support the growth positively in the economy in the three countries with different level of implementation.

**Keywords:-** Development, Green Finance, Economic Growth  
*Jel Classification:* F18, F64, F65, G32.

## I. INTRODUCTION

Green finance has many dimensions, it is a main way to finance for sustainability and also can be called as a provision of financing for a new investment that supports the environmental benefits Madaleno (2022).

The innovation in using the green bonds which can be considered very essential issue in the green finance, it is very common to issuing green bond by the international financing organizations.it was for a specific project. the number of issues increased for a green bond to reach USD 155.5 billion in at the last six years, Green bonds have a positive impact on the (Migliorelli, (2019).

## II. LITERATURE REVIEW

CiTİL, M. (2024) This paper explains the relationship between the green finance and the green growth implementing the study on the countries of G-20 framework. The methodology in the Quantile regression to measure how green growth can be affected by green finance. The result showed that there are many policies needed to encourage sustainable economic growth and sustainability environment in G20.

Madaleno (2022) the literature explains the relationship between green finance and clean energy for sustainable development, the methodology in application time-varying causality test among green finance, the clean energy promoted to green finance in the light of environmental responsibility. the investment and fund for the green technology support the goals of sustainable development.

Li, T., Yue, X. G., (2024)the paper discusses the effect of economic expansion in increasing the CO<sub>2</sub> emissions. The paper implements with a data from G20 countries to show the effect of green finance on the level of carbon emissions of G20 . The methodology of the study uses the CUP-FM (Continuously Updated Fully Modified) and CUP-BC (Continuously Updated Bias-Corrected), the results in a negative correlation between the variable of green finance, and carbon emissions.

Kumar (2024). The paper links green finance and the circular economy, the paper uses a comprehensive review, the results in the in supporting the society by implementing the green finance. The managers can use the green finance elements to understand the strategy of the circular economy with the impact in the investment decisions in using the green finance in the circular economy.

Liza, F. (2024). The paper explains the concerns of climate change for future sustainability. The high increase in CO<sub>2</sub> emissions in the developed economy. that needs a transition to a renewable energy investment and green finance. It uses data from G20 countries. The results in the relationship between the economic growth achieving and increasing CO<sub>2</sub> emissions economic growth need to invest in the projects with high CO<sub>2</sub> emissions to reach financial stability.so it is better to use the green finance for economic sustainability.

Van Niekerk, A. J. (2024) The paper explains how the green finance can solve the economic problem related to the challenge in the absence of an effective economic incentives, using a link as a bridge between the green finance and the economic incentive for saving the resources, the results in attracting the investment toward the sustainable development goals SDG. In that trend green finance can affect the sharing benefits.

Agrawal (2024). This identifies the effect of implementing of the green innovation and engaged the green finance in the public management. The paper uses a data from 2016-2023, the finding in the importance to support the sustainable development in the long term in a circular economy for the policy makers and the stakeholders.

Jia, S., Shang (2024), this study examines the role of green finance in encouraging the development of green human resource management (HRM), the methodology using the evaluation of the Chinese data is subjected to DEA analysis, Tobit regression, and a sensitivity analysis model. The findings led to the positive impact of the green finance on environmental performance. There was a need to support the concept of environmental sustainability into HRM plans.

Lakasse, S., Amril (2024), the paper reflects how Green finance become a popular topic for investors to integrate financial issues with sustainable environmental goals. The methodology from articles on Google Scholar spanning from 2014 to 2024. The study findings that green finance support the investors in adding the environmental values into decision making in the companies.

Dragica Stojanović (2024) the paper showed the implement of the green finance for protection of the environment, that can affect the economic issues, the methodology in the Using the data of green carbon the results of the paper in the ability to increase the private capital through using green finance in Serbia.

Hidayat-ur-Rehman, I., & Hossain, M. N. (2024). The impacts of Fintech adoption, green finance and competitiveness on banks' sustainable performance: digital transformation as moderator. *Asia-Pacific Journal of Business Administration*.

Hidayat-ur-Rehman (2024) the paper aims to use the concept of financial technology (Fintech) solutions to enhance the sustainable performance. The methodology in using a dual structural equation modelling-artificial neural network) SEM-ANN approach was employed, The findings in a significant impact of Fintech adoption and DT on the sustainable performance of banks.

Dar, B. I., Badwan (2024). The purpose of this study is to enhance the new vision in a sustainable economic development. the methodology in using a data of 665 papers from the period

of 2015 and 2023. Findings in the major role of green finance in long-term economic growth.

Khalatur, S. M., & Dubovych, O. (2022), the paper measures the impact of green finance on Ukrainian. The methodology for data from year 2000 to 2020 using environmental Performance Index 2020, environmental health indicator, the paper using the financial engineering of green finance to involve in the world of creativity in finance, the green finance was an effective factor for increase the industrialization.

Wang, C., (2024). The paper reflects the green economy as approach to understand the green finance, the methodology in data from a Chinese companies from 2009 to 2020. The findings in the great role of green finance to support a green culture plays with more innovation impact on the company.

Khan (2022). The paper discuss the climate change finance, the methodology in measuring its impact on the ecological footprint in 26 countries in the Asian region. The finding is the strategy is important and the support of policy makers to invest in climate finance.

Soundarrajan, P., & Vivek, N. (2016). the paper discussed the important role of the green finance in the Indian industries with the expected gain from many opportunities and to face challenges, the methodology in the implementation on the Indian market, the results in the impact of the green finance on increasing the value of the environment, the need for improving the human well-being and social equity.

Yao, Y (2024). The aim of this study is to investigate the impact of green finance on human well-being in, the methodology in implementing of the carbon intensity of human well-being (CIWB) index and strengthens the integrity of the assessment model for green finance development in China. the results in Green finance has a significant, positive and direct impact on human well-being. Simultaneously, it influences human well-being indirectly through three transmission channels. Urbanization and an ageing population are significant individual mediators through which green finance contributes to human well-being improvement. Notably, these two mediators also work together to transfer the promotional impact of green finance to human well-being.

Wang, J. (2024). The paper clarify the relationship between the green finance and corporate goodwill. The methodology is a regression test for a sample of 28,513 valid A-share listed companies. the study results is the development of green finance enhance the quality of accounting information.

Ren, Y., Ding, Z., & Liu, J. (2024). The research aim is to investigate the direct and indirect impacts of green finance on agricultural carbon total factor productivity (ACTFP), the paper methodology in using the Global Malmquist Luenberger (GML) Index method. Findings After the implementation of the

GFPP, the ACTFP was improved, with the increasing of the level of technical efficiency for the driving force.

Numan, U., (2023). This study aims to measure the impact of green finance on the environment , the methodology was the thirteen complex economies from 2006 to 2020. For evaluating the relationships between ecological footprint, economic complexity index, green finance and technological innovations. finding the implement of green finance and technological

innovations effectively will decrease the ecological footprint by 0.28% and 0.75%.

Yang, Q., Cui, W. (2023). The aim of the paper is to conduct an inquiry into the efficacy of China’s green credit strategy, the methodology was collecting 1086 manufacturers from China, finding the challenge in a corporate green-washing, in cities with low environmental disclosure standards and makes it more difficult for businesses to obtain new loans.

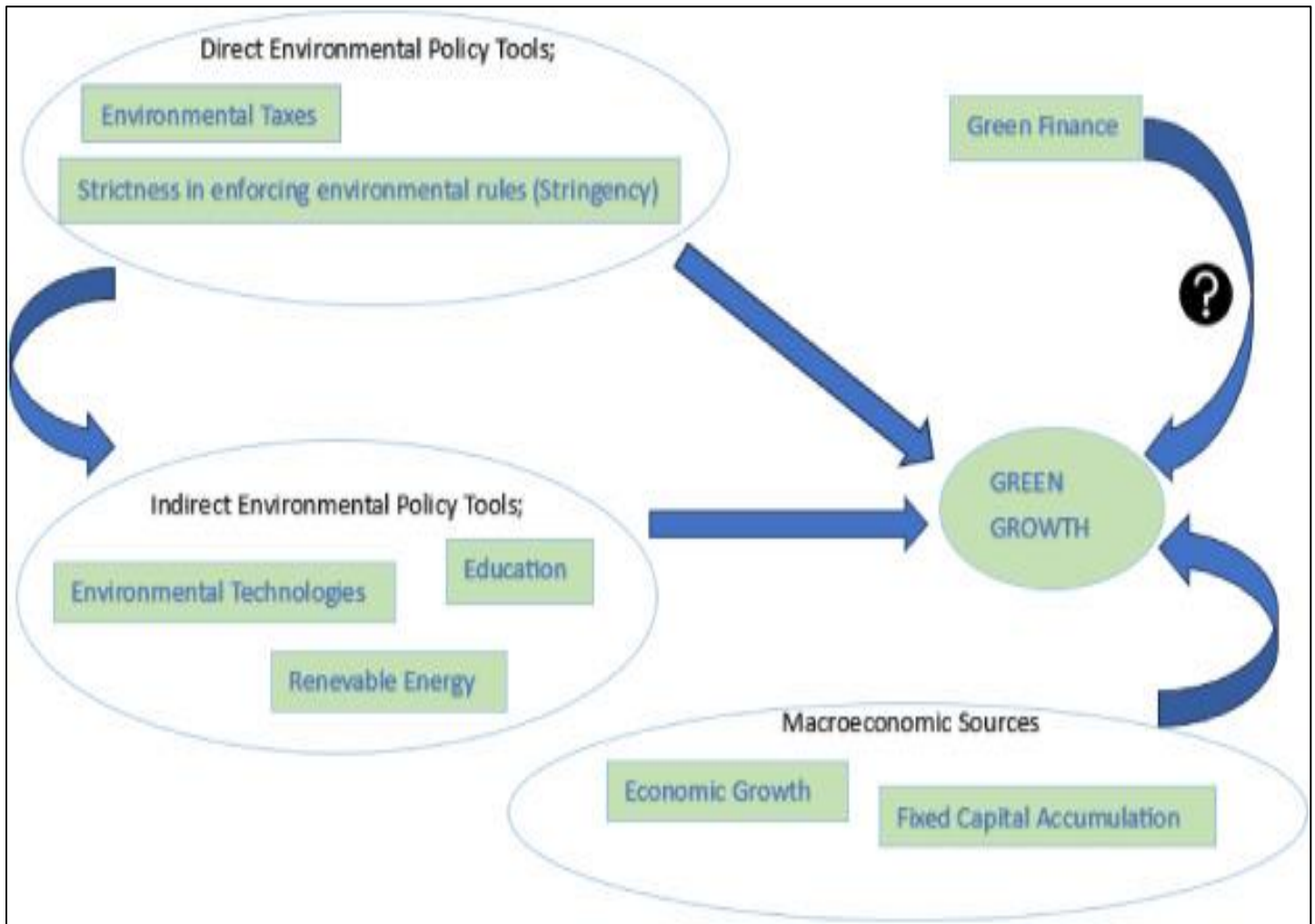


Fig 1: Environmental and Economic Impacts of Green Finance  
 Source: Madaleno, M., Dogan, E., & Taskin, D. (2022).

Table 1: The Variables of the Research

Variables	Abbreviation	sources
Green finance	GGFDI	Bloomberg
Gross fixed capital formation Unit: Annual % growth)	FIXCAP	World Bank
Government expenditure on education, total Unit: % of GDP	EDU	World Bank
GDP growth Unit: Annual %	GRW	World Bank

Table 2: The Economic Indicators for Egypt, China and Turkey 2019-2023

year	2019	2020	2021	2022	2023
<b>GDP growth%</b>					
Egypt	5.55	3.55	3.29	6.58	3.7
China	5.95	2.23	8.44	2.98	5.2
Turkey	0	0.81	1.85	11.43	5.5
<b>Government expenditure on education, total Unit: % of GDP</b>					
Egypt					
China	3.54	3.57	3.29	3.29	3.29
Turkey	4.30	4.45	4.0	2.84	2.6
<b>Gross fixed capital formation Unit: Annual % growth)</b>					
Egypt	11.9	-18.7	-1.92	15.9	-21.5
China	3.96	4.29	3.86	3.36	3.60
Turkey	-12.47	7.32	7.22	1.26	8.88
<b>Global Green Finance Development Index (GGFDI)</b>					
Egypt	41	41	41	41	41
China	4	4	4	4	4
Turkey	48	48	48	48	48

Source: World Bank national accounts data(2024), National Accounts data files. World Development Indicators, world bank

- Global Green Finance Development Index (GGFDI) 2021, and country rankings- green finance progress in world’s 55 largest economies (iigf-china.com)
- <https://iigf-china.com/global-green-finance-development-index-ggfdi-and-country-rankings-green-finance-progress-in-worlds-55-largest-economies>.

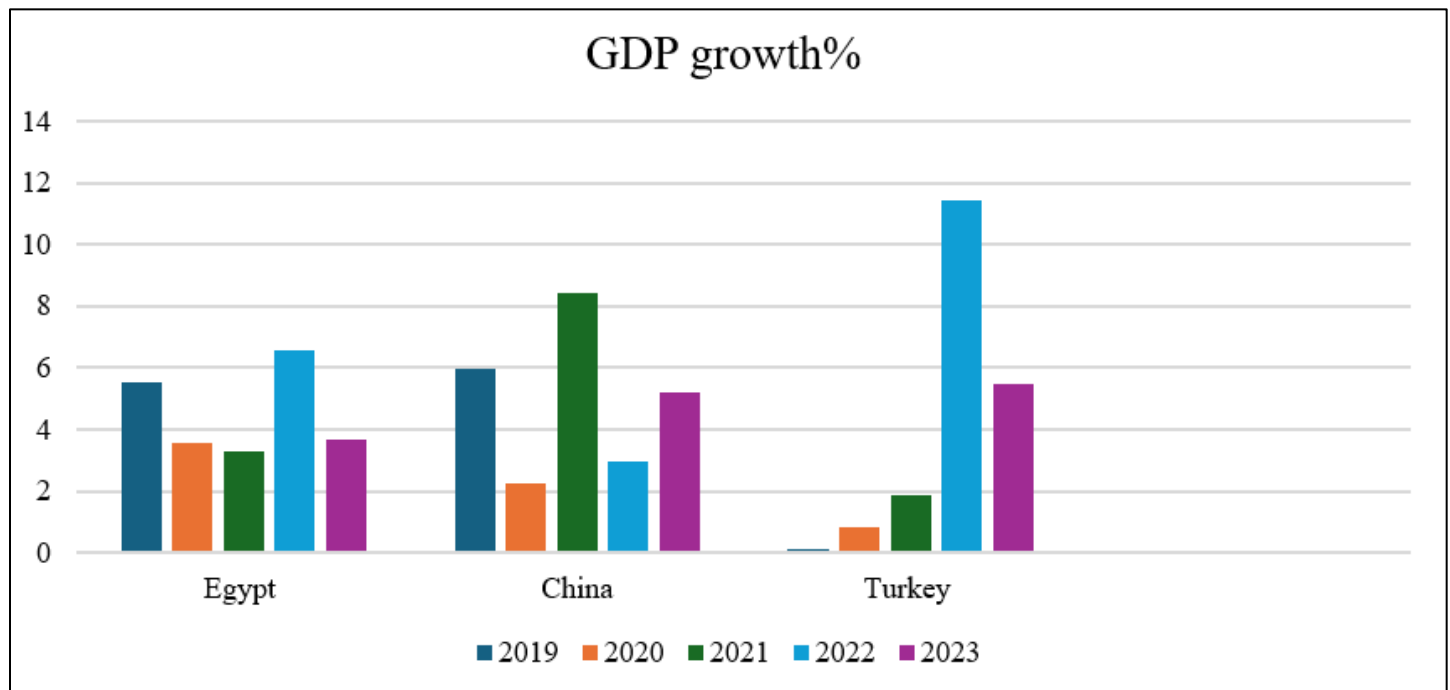


Fig 2: Growth Rate for Egypt, China and Turkey

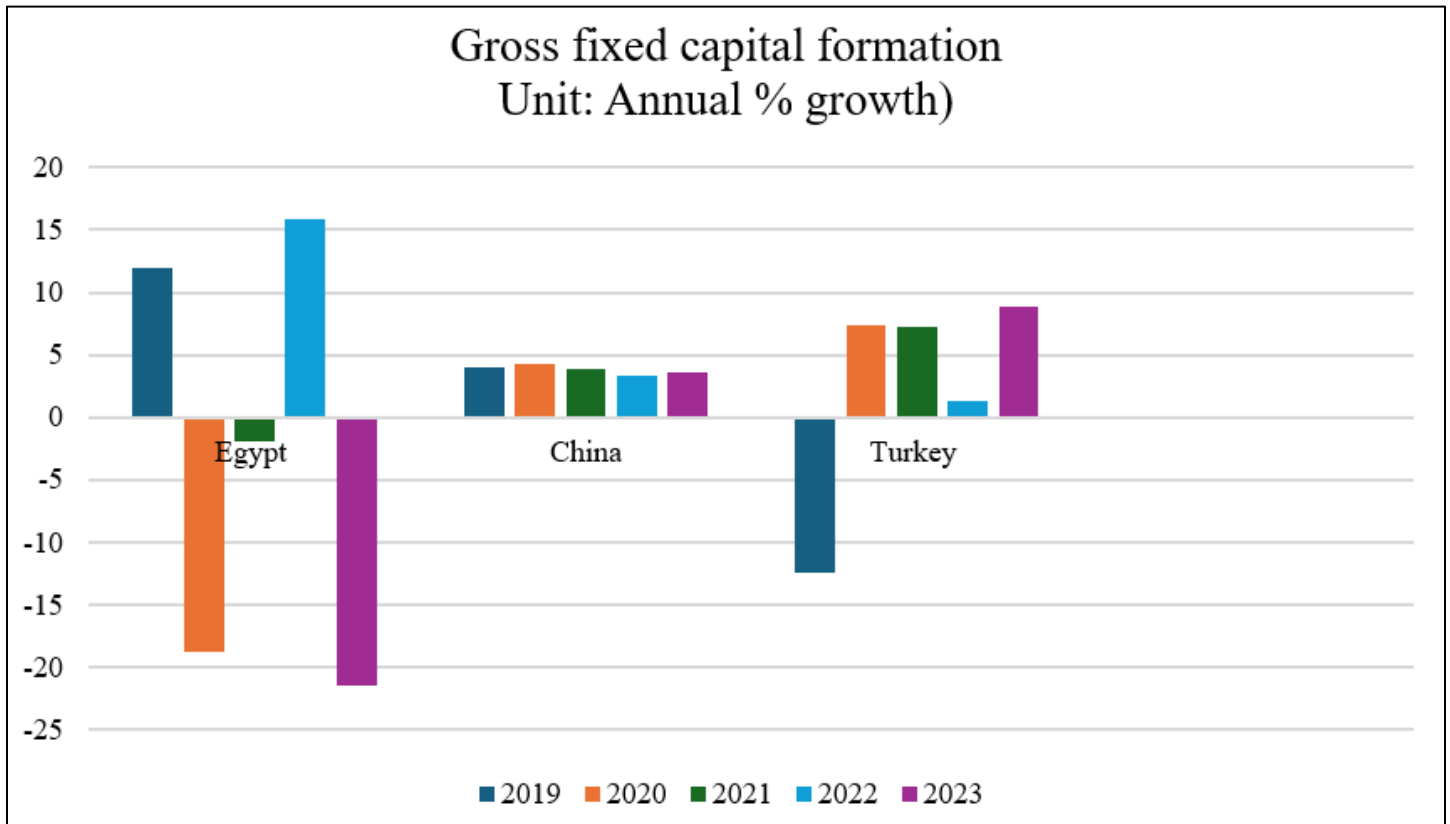


Fig 3: Growth Fixed Capital Formation Unit: Annual Growth % for Egypt, China and Turkey

### III. CONCLUSION

Although the role of green finance in developing the economy of the country is very important but the policy makers can add a new achievement in the implement, the three countries tried hard to involve green economy for economic sustainability ( Li, T., Yue (2024).

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