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Green Finance: A Gentle Introduction

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Abstract Green finance refers to financial investments flowing into sustainable development projects, environmental products, and policies that encourage the development of a more sustainable economy. It aims to direct financial flows (from banking, insurance, and investment) to support the delivery of the Sustainable Development Goals. Green finance is part of green banking, which greatly contributed the green industry, green growth, and green economy. It has demonstrated its fast growing relevance. This paper provides a brief introduction to green finance.

Keywords green finance, sustainable finance, climate finance, environmental finance

Introduction

The financial system serves as the nervous system of the global economy. Gradually, businesses have realized the need to adopt environmentally friendly behavior and promote social responsible strategies. Green finance is an emerging pattern integrating environmental protection with economic profit. Bolstering green finance gives a push to green development and green growth, which aim at minimizing waste and improving efficiency in the use of natural resources. Green finance rises up to the challenge of up-front financing for climate change and sustainability.

Green Investment and Sustainable Finance

Green (or environmental) financing is to increase level of financial flows from the public, private, and not-for-profit organizations to sustainable development priorities. Green finance is often used interchangeably with green investment. Green investments are basically the expenses an organization makes for a positive impact on the environment. A green investment is considered to be a climate resilient investment made in companies, projects, and financial instruments in the field of climate change, renewable energy, clean technologies, etc. [1].
Green finance is also closely related to sustainable finance. Sustainable finance includes a strong green finance component that aims to support economic growth while reducing pressures on the environment and improving efficiency in the use of natural resources. Green financing could be promoted through changes in the nation's regulatory frameworks, increases in green financing from different sectors, increases in investment in green technologies, increase use of green bonds, etc. Enforceability of green finance regulations largely determines the level of trust investors put and the amount of green finance markets get.

Concept of Green Finance

Green finance may be regarded as a bridge that connects environmental industries to financial institution. It comprises of [2]: (1) the financing of public and private green investments; (2) environmental goods and services; (3) prevention, minimization, and compensation of damages to the environment and to the climate; (4)

the financing of public policies that encourage the implementation of environmental and environmental-damage mitigation; (5) components of the financial system that deal specifically with green investments such green bonds and structured green funds. Some of these components are illustrated in Figure 1 [2]. As shown in Figure 2, green finance requires partnership between government, business community, and citizens [3].

Figure 1: Components of green finance [2]

Figure 2: Green finance requires partnership between government, business community, and citizens [3]

Green finance has the following components [4]:

- *Climate Finance:* Green finance is a large umbrella term covering climate finance, where the water sanitation, industry pollution control, biodiversity protection, etc. are included. Climate Finance is an emerging form of green finance available for projects in developing countries. Governments worldwide are continually committing more resources to climate finance.
- *Green Investments*: Green finance is often used as synonymous with green investment. It will include the land acquisition and the project preparation costs. The financial sector (banks, insurance companies, and investment trusts) plays a crucial role in mobilizing private capital and managing green

projects. Green finance in green projects (agriculture, green buildings, energy, etc.) should increase the economic development of the nation.

- *Environmental Financial Products:* The financial sector plays a central role in allocating resources towards a sustainable and green economy. From the banking perspective, green finance can also be considered as the financial products or services, under the consideration of environmental factors throughout the lending decision making. As shown in Figure 3, green financial products and service opportunities vary across the sectors and markets [5].
- *Sustainable Investment:* For enhancing the environmental sustainability, the green finance comprises of all the types of investment and lending procedures. The green finance can include the different components of the financial system that can specifically deal with the green investments.
- *Capital Intensive Projects:* The green projects are generally capital intensive in nature. Significant upfront investments are necessary for an industry to adopt new green technology. The return on investment can be gained after a much longer period.

Figure 3: Wide spectrum of green financial products [5]

The predominant financial instruments in green finance are debt and equity. In debt financing, investors lend money to borrowers, who pay back the amount with interest.

Equity financing is the method of investing capital in a company stock in return for an ownership interest. Equity is also called stock or shares. Debt and equity funds are investment vehicles in green finance [6]. The government of every nation should establish independent Green Investment Bank (GIB), which only provides loan to the green entrepreneurs [7].

One of the best-known facets of green finance are green bonds, which are used in financing investments with environmental or climate-related benefits. These are double impact bonds because they deliver return as commercial debt as well as deliver an impact for financing the environmental transition. Any entity that has suitable green assets to finance can issue green bonds. Green bonds have been joined in the market by sustainability bonds and social bonds [8].

Examples of Green Financing

Financial institutions are in a unique position to promote an individual's environmental impact. Green finance needs to be applied across agricultural, transport, energy, infrastructure, and the financial system itself. Some practical examples of green financing are presented below.

- Credit card companies such as Visa are taking considering an individual's purchases to create incentives and programs to allow the cardholder to become more environmentally friendly.

- Banks are offering a wide range of environmentally friendly products and services. They finance energy saving and environmental protection and to raise awareness of environmental unsustainability.
- Green finance supports financing green and renewable energy projects designed to reduce carbon emission and its negative health impact.
- In the cruise industry, green ships that can switch their main energy source more efficient fuel alternatives such as liquefied natural gas are being financed.
- Green financial mechanisms can lead to increased coverage of potable water through the funding of new water infrastructure systems in Colombia.
- Finance Watch is a European, not-for-profit association that is committed to making finance work for the good of society.
- France's lead in the area of green finance is based on its international commitments, its ground-breaking regulations, and its innovative market stakeholders who are addressing climate issues and limiting their financing for fossil fuels (coal).

Benefits and Challenges

Greening the finance system will promote green investment, strengthen the potential of economy, accelerate the green transformation of infrastructures, reduce the pressure of environmental issues on public finance, improve the return of the investment of green projects, strengthen the corporate social responsibility of enterprises, and make global economy stronger and secure. Green finance can also be used as a strategic tool by the government to reduce ever-growing environmental problem. Green finance can improve productivity. It can also help to alleviate these externalities, through market-based means.

Interest in green finance has exploded in recent years. *Green finance is drawing huge interest in light of climate change. It needs to be about more than financial returns. It is challenging to use green finance for resource-efficient investment.* Financial institutions have not fully realized the strategic significance of tackling climate change and developing green finance. They are not yet motivated to explore developing green finance business. For example, it seems that the majority of German banks, currently have neither the awareness of climate change as a contributor to their business nor the willingness to enrich their business and product models with green components [9]. Significant upfront investments are necessary for an industry to adopt new green technology. The transition to a green economy is a global challenge estimated to be worth tens of trillions of dollars. Developing countries will need to adapt to low-carbon economies if the world is to achieve the UN Sustainable Development Goals.

Conclusion

Green finance is an emerging financial pattern designed for environmental protect and sustainable utilization of resources. It is a phenomenon that integrates finance and business with eco-friendly behavior [10]. It is generally regarded as the financial support for green growth, which is made through the harmony between the economy and the environment. It is essential for the development of any nation. Although green finance is still in its infancy as a concept, it is becoming increasingly mainstream. More information about creative computing can be found in books in [11-14] and two journals exclusively devoted to it: *Green Finance* and *Journal of Sustainable Finance & Investment*.

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