

A SURVEY OF LITERATURE ON THE DEVELOPMENT OF GREEN FINANCE AND GREEN BANKING

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Abstract

The continuous environmental degradation confronts the finance world with a new challenge, namely financing green projects. Therefore, it is relevant to analyze the current literature stand in terms of the development of these financial products, as well as the possible determinants, and effects of these on the banking sector. Our survey of literature presents that most of the previous empirical studies concentrate on the willingness of the financial sector to diminish the environmental impact of financial products, and the costs associated with the implementation of such products. Nevertheless, a high number of studies show the significant role of central banks' policies related to financial institutions' activities, especially in green lending. However, a lack of literature that may persist is correlated with the positive determinants of green finance tools that might increase the effectiveness of these financial products to significantly diminish the climate risk

Keywords: *green finance, green banking, green credit, sustainable development*

Clasificare JEL : G15, G19, Q21, Q28

1. Introduction and context of the study

The rising problems generated by climate change reveal one question: Can the finance world improve the environment quality? And if the answer is yes, how? With the help of the Paris Agreement, all the countries became aware of environmental sustainability, and green finance (GF) became a day-by-day reality. To fulfill the Paris Agreement sustainable development goals (SDG), governments must create and adopt financial instruments and regulations that will contribute to preserving the environment quality (Toliver et al., 2020).

Green finance aims to transfer financial resources from less green companies to green ones correlating the finance world with ecology to fulfil the objective of pollution reduction and sustainable development. The first goal of GF is to provide funds and support investments for activities that are beneficial for the environment.

2. The review of main findings on green finance

Two decades ago, nobody thought that green finance would play such an important role in the economy, especially in the banking sector. The menaces of climate change, “a long-term change in climate patterns, which happens at both the global and regional level” (Rovinaru et al., 2023), or global warming, increases the entire world's focus on environmental pollution, on degradation of natural resources, and the measures that might develop future world development sustainability. If at that time, the financial sector ignored the warning signs, the awareness of sustainable development goals (SDGs) surged by considering the environmental issues and

building up new financial products to sustain a less polluting life. The necessity to reset the financial system to respond to the new environmental challenges was emphasized by OECD (2018) and Volz (2018). The 17 SDGs (UN and Climate Change) can be fulfilled by applying the Paris Agreement which implies a development of financial instruments, and a re-examination of the way finance works. The symbiotic relationship between economy and ecology became a must, the green economy development being a powerful instrument in environment safeguarding (Bucur L.M, 2024). Nevertheless, this directive transmits also that capital should be assigned to low-carbon activities that stimulate energy transition. The “green finance” can have a significant role in successfully attaining the SDGs (Rahman et al., 2022). To boost economic growth and improve environmental sustainability, new green finance instruments and concepts, like green bonds, green banks, carbon markets, green central banking, or community-based green funds, have been widely introduced and developed in the last few years (Duchene, 2020).

Hohne et al. (2012), and Lindenberg (2014) try to define green finance and find evidence for the same conclusion that green finance implies the financial investments into projects and initiatives whose aim is industrial pollution control to biodiversity protection, resulting in a sustainable development, and a less polluted environment. Hohne et al. (2012) underline that “mitigation and adaptation finance are specifically related to climate change related activities: mitigation financial flows refer to investments in projects and programs that contribute to reducing or avoiding greenhouse gas emissions (GHGs) whereas adaptation financial flows refer to investments that contribute to reducing the vulnerability of goods and individuals to the effects of climate change”.

Rahman et al. (2022) consider that a significant number of scholars studied green finance related in a general way to financial institutions or further counterparties, and just a small fraction of them considered the relationship with the banking industry.

3. The review of main findings on green banking

Concerning the relationship with the banking sector, green finance is view as the development of financial products and services, under discussion of environmental factors right through the lending processes. “Ex-post monitoring and risk management measures are further conducted to promote environmentally responsible investments and stimulate low-carbon technologies, projects, industries, and businesses” (PWC, 2013). ESG market development provides directions for ethically reliable investment and risk management (Naeem et al. 2023).

A strand of literature is related to the banks’ growing awareness of ESG integration into strategies, processes, and financial instruments to generate value from medium- and long-term perspectives (Galletta et al. 2022). However, difficult times and unexpected crisis periods might decrease the development of green financial products. It is noteworthy that the COVID-19 pandemic reduced the efficiency of the regional ESG markets, the ESG European market being the exception.

Green finance and green banking are not related directly to the environment but through the activities of their clients. Adopting green strategies into their modus operandi became a priority for banks, green banking being a solution for sustainability development (Nath et al., 2014). “Green banking means combining operational improvements, technology, and changing client habits in the banking business” (Biswas, 2011). Islam & Das (2013), state that the green banking objective is consistent with the use of bank resources in projects that protect the environment and society. Millat et al. (2013) find evidence that green banking is, on the one hand, an internal decision to transform the bank's internal operations by providing automatization of processes and use of green, renewable energy. On the other hand, bank resources are consumed to promote responsible lending to companies, or projects environmentally friendly.

Because “the rules of the game” in the banking system are established by the central banks, some papers identify the concern of central banks related to green investments (Volz, 2017; Dikau & Volz, 2018, 2021; Hansen & all, 2022). Dikau & Volz (2018) studied the public policies introduced by central banks that could support sustainable finance by emphasizing to which extent and which are available tools for the banks to reduce climate risk. By employing a sample of 135 central banks and monetary unions that integrated ESG factors in their core policies, the main finding is that the activity of a central bank that does not concentrate on climate risk may fail in its objectives (Dikau & Volz, 2021).

Dikau & Volz (2021), and Hansen (2020) agree that central banks having all the instruments necessary to finance the green investments will highly be conducive to “greening” the financial system and economy. To achieve this, the actions coordination of central banks and political decision-makers, and the combination of monetary tools, and public policies are compulsory (Volz, 2017; Duchene; 2020). Hansen (2020) highlights that the credibility of central banks in this area will be reinforced if they keep their distance from the political environment.

Previous studies embrace the idea of designing suitable banking regulations make the banks to offer loans to low-carbon initiatives to sustain green projects (Biswas, 2011; Campiglio, 2016; Boros et al., 2023; La Roccaa & Baietti, 2012; Islam et al., 2020). The adoption of green banking rules and actions leads to environmental benefits, as well as cost reductions in the banking sector (Biswas, 2011). The role of macroprudential regulations favorable to low-carbon projects (Campiglio, 2016) is essential for the growing interest of private investors in the green industry. Feldkircher & Teliha (2024) express their concerns about the focus on climate quality improvement policies of central banks from their green communication manner studying the central bank speeches on climate change topics, concluding, that the central bank legislation related to climate change suffers from scarcity. Arsenau, & Osada (2023) find a new link between the central bank mandate and climate change-related communications concluding that the mandates will shape the communication of the central bank on climate change. Related to the central bank's sensitivity to climate change news and climate risk, Jawadi et al. (2024) study reveals that in the FED case, the reaction is even stronger after the COVID-19 pandemic.

Another scholar's interest area is related to credit prices in the green financing context. Degryse et al. (2023), examined if the pricing of bank credit incorporates the environmental responsiveness of firms and banks. After the implementation of the Paris Agreement ratification, banks tend to reward green firms by providing cheaper loans. However, this behavior was notable only if both contractual parties were green. He et al. (2019) view green credit as a derivative financial tool and a valuable instrument which can be used to increase the protection of environment by financial system implication. Through this financial product, green credit, it is constructed a threshold effect model to study the non-linear relationship built up between renewable energy investment and the green economy development index.

Javadi & Al Masum (2021) demonstrated empirically that firms support higher interest rates on their bank loans located in regions exposed to higher climate change. Similar results were obtained by Nguyen et al. (2021) showing that for the mortgages on properties confronted with high climate risk (in this case namely, sea-level rise) banks impose higher interest rates. Further, Agnese, & Giacomini (2023) investigated whether ESG factors are a significant determinant of bond issuance. They found that for the banks with elevated ESG scores, the cost of bond issuance is lower.

The relationship between banking competition and green finance is studied by Zhou & Zhang (2023). Even if it is well known that competition improves resource allocation meaning that green finance must increase its effectiveness, their study reveals that in the case of the Chinese economy, the banking competition reduced the firm financial results. Their findings are consistent with Fan et al. (2021) results, the “brown” firms compared with green firms face a serious increase in interest rates, a fall in loan amounts, and restricted access to loans. The overall effect on firms

depended on their size, the small ones (generally) reduced their production, and the big firms reduced the polluting technologies.

4. Conclusions

The finance sector faces a new challenge, namely the climate change risk which might affect the financial sector, including the banking sector, in an unprecedented manner. Based on this, it is highly relevant to know the current stand of the studies on this matter. Our survey of literature focuses on the current literature stand in terms of the development of green financial products, as well as the effects of these on the banking sector. The main findings present that the main aim of the scholars is to understand better to which extent financial institutions are willing to address the climate risk and which are the costs associated with these new developments. Previous studies also bring evidence that central banks have a major role in green lending, also in the regulation of green products, especially in greenwashing. However, there is still some lack in the literature concerning green finance, respectively green banking. Which are possible factors that might increase the effectiveness of green products? and how can be greenwashing diminished? are still open questions.

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