


# Chapter 6

## Financial Tools for a Green Economy: The Intersection of Carbon Accounting and Sustainable Finance

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### ABSTRACT

*Abstract The increasing awareness of climate change has given rise to a new approach of how the financial systems factor in environmental factors. In this chapter, the authors aim to investigate the link between carbon accounting and sustainable finance, and the potential of financial instruments for supporting the green economy. It is a crucial tool in quantifying and managing Green House Gas (GHG) emissions in organizations thus providing a framework for emission reporting. At the same time, sustainable finance measures like green bonds, ESG investment, and carbon pricing have emerged as a way of directing capital towards low-carbon projects*

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*and endeavors. This chapter focuses on how carbon accounting methodologies can improve the financial decision-making process, increase transparency and encourage sustainable investment strategies. It also looks at the potential and difficulties of applying carbon accounting to the financial system, including the use of blockchain for carbon credits and artificial intelligence for emissions tracking.*

## **INTRODUCTION TO CARBON ACCOUNTING AND SUSTAINABLE FINANCE**

Carbon Accounting is the process of quantifying and reporting on the amount of GHG emissions in order to establish an organization's, industry's or country's carbon footprint (Brandt et al., 2017). It entails the quantification of emissions from on-site sources (Scope 1), off-site sources from purchased energy (Scope 2), and other sources within the value chain (Scope 3) to enable identification of an organization's emissions. Carbon accounting is used for the purpose of offering the organization information on the sources of emissions so as to enable it to set reduction targets as well as meet the legal standards on emissions in relation to climate change (Liu et al., 2023).

Sustainable Finance, in contrast, is the concept of conducting business in a way that supports long term financial performance without compromising the environment, society and governance (Lee & Suh, 2022). It encompasses investment in activities that support sustainability such as Green Bonds, Renewable Energy and Low Carbon technologies. Sustainable finance focuses on the shifting of capital to those activities that support the transition to a low-carbon economy and thus on the integration of climate change risk and opportunity into financial performance (Taneja et al., 2023).

Carbon emissions are one of the most critical factors in the current climate change discussion. Greenhouse gases, especially carbon dioxide (CO<sub>2</sub>) are the major causes of climate change, which include increase in temperature, sea level instability and increased rates of disasters (Bhatti et al., 2024). Pollution caused by climate change is on the rise; thus, it has become crucial for organizations, governments and other financial institutions to not only minimize emissions but also encourage the shift towards a low-carbon economy. This has created increasing awareness that carbon accounting and sustainable finance have important roles to play in managing climate risks and supporting the longer-term management of environmental resources.

Efforts to reduce carbon footprint are closely intertwined with financial systems, as they win over financial markets to invest resources in sustainable activities (G. Wu et al., 2024). Capital investment decisions, funding mechanisms and green bond and ESG focused funds are central to mobilizing capital to low carbon initiatives.

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