Chapter 3

Carbon Pricing and Capital Reallocation:
A Comparative Case Study of Global Emissions Trading Systems and Financial Markets

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ABSTRACT

Carbon pricing has emerged as a central policy instrument for aligning financial markets with climate objectives. Emissions trading systems (ETS) increasingly act not only as environmental tools but also as powerful financial signals shaping global investment behavior. This chapter investigates how carbon pricing mechanisms influence capital reallocation in global financial markets through a comparative case study of major emissions trading systems, including the European Union Emissions Trading System (EU ETS), China's National ETS, and the California Cap-and-Trade Program. Methodologically, the chapter adopts a mixed-methods case study design integrating quantitative financial market analysis with institutional and policy review. Secondary data are drawn from carbon allowance markets, stock exchanges, sectoral investment flows, and ESG disclosures. The findings indicate that higher and more credible carbon prices are associated with a systematic reallocation of capital away from carbon-intensive assets toward renewable energy, clean technology, and low-carbon infrastructure.

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1. INTRODUCTION

Climate change has emerged as one of the most significant systemic risks confronting the global economy, with far-reaching implications for production systems, financial markets, and long-term growth trajectories. In response, governments have increasingly adopted carbon pricing instruments to internalize the environmental externalities associated with greenhouse gas emissions and to align market incentives with climate mitigation objectives. Carbon pricing implemented through carbon taxes or emissions trading systems (ETS) represents a shift from purely regulatory approaches toward market-based environmental governance. Over the past two decades, these mechanisms have expanded rapidly across developed and emerging economies, reflecting growing recognition that climate policy is inseparable from economic and financial policy.

Emissions trading systems have consequently evolved beyond their original role as compliance mechanisms to become sophisticated economic and financial instruments. Mature markets such as the European Union Emissions Trading System (EU ETS) now exhibit features similar to commodity and financial derivatives markets, including futures trading, risk hedging, and speculative participation (Balaji, K. & PS.Rao, 2024). Newer systems, including China's national ETS and subnational schemes such as California's cap-and-trade program, further illustrate the growing integration of carbon pricing into broader financial architectures. This evolution has intensified the interaction between climate policy, corporate strategy, and financial market behaviour. Accordingly, this chapter aims to examine carbon pricing as a financial signal and to assess its effectiveness in redirecting capital through a comparative case analysis of major global emissions trading systems and associated financial market responses (Song et al., 2019). Despite the rapid expansion of carbon pricing regimes, existing scholarship has largely examined emissions trading systems (ETS) in isolation, focusing either on environmental effectiveness or short-term asset price responses without systematically analyzing how institutional design differences shape cross-market capital reallocation dynamics.

1.1. Research Gap and Rationale for Comparative Analysis

This chapter addresses that gap by advancing a comparative financial perspective that treats carbon pricing as a transmission mechanism linking regulatory credibility, market structure, and investor behaviour across jurisdictions. By comparing mature, emerging, and subnational ETS frameworks, the analysis reveals how variations in policy stability, market depth, and financial integration condition the magnitude and speed of asset repricing and capital shifts. Such cross-case evaluation uncovers structural patterns in climate–finance interaction that single-case studies cannot detect,

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