

# MEMOIRE

Présenté en vue de l'obtention du Master en Ingénieur de gestion,  
finalité M-INGEF

## Assessing the Additionality of Corporate Green Bonds in Europe: Impacts on Sustainable Investments and Environmental Outcomes

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Année académique 2023-2024

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## **Abstract**

Green bonds have emerged as a significant financial instrument to support environmentally sustainable projects, particularly in areas such as renewable energy and climate change adaptation. These bonds are designed to raise capital for projects that promote sustainability and reduce greenhouse gas emissions. Despite their intended purpose, there are challenges in determining the financial additionality of green bonds, as many projects funded by these bonds could have secured financing through other means, thereby limiting their additional environmental benefits. Moreover, the extent to which green bonds achieve significant environmental impact remains a topic of ongoing debate. This thesis investigates the financial additionality and environmental impact of green bonds within existing labeling standards, assessing whether they genuinely promote new environmentally sustainable activities.

The study examines the impact of green bond issuance on GHG emissions among European companies, utilizing a Difference-in-Differences (DiD) model. The results indicate a general decrease in GHG emissions; however, the specific impact attributable to green bonds was not statistically significant. Additionally, a case study analysis using the Clean Development Mechanism (CDM) framework assessed the financial additionality of green bonds in funding offshore wind farm projects. The analysis revealed that green bonds were crucial for projects such as the Hohe See and Albatros Wind Farms, covering nearly 50% of the total investment, while their role in the Borkum Riffgrund 2 project was more modest.

The study reveals that green bonds typically have lower coupon rates than conventional bonds, a phenomenon referred to as "greenium." This can enhance the financial viability of green projects, potentially encouraging investment in initiatives that might not have been pursued otherwise. However, while specific projects demonstrate financial additionality under the CDM Framework, the overall necessity and environmental impact of green bonds remain uncertain. Further research is needed to fully understand the effectiveness of green bonds in delivering substantial environmental benefits.