Evaluating Climate Risk in Credit Models: AI-Driven Insights for the Dutch Banking Industry

Introduction

Accenture is a global consultancy firm specializing in the implementation of its strategic advice. With a dedicated team in the banking sector, the company works to improve efficiency and resilience in the industry. In the current financial landscape, risk management plays a critical role in ensuring stability, especially as regulatory demands and scrutiny continue to grow. Climate-related risks, such as the financial consequences of flooding or drought, pose new challenges to traditional credit risk models. These risks require banks to adopt more forward-looking and data-driven methods.

Thesis Project

This research will explore how AI and machine learning can incorporate climate factors into credit risk models, with a focus on the Dutch banking sector. The goal is to contribute to the development of models that better capture these risks while supporting both financial stability and sustainability.

Literature Study

1. **Regulations (Basel IV)**
   The starting point of the study will be understanding regulatory frameworks, such as *Basel IV*, as these set clear guidelines for which credit risk models are permissible. Gaining insight into these regulations ensures that the models evaluated or developed align with current regulations, avoiding solutions that are non-compliant.

2. **Asset Classes and Credit Risk Models**
   Next, the study will focus on traditional credit risk models and their relationship with asset classes. This provides the necessary baseline to identify how climate factors may impact these models and where improvements can be made.

3. **Climate Risks**
   Understanding climate risks, including physical and transitional risks, is essential to determine their financial impact on credit models. This section highlights how climate events, such as flooding and drought, influence the stability of asset classes.

4. **Machine Learning Models and Linking Frameworks**
   Finally, AI and machine learning models will be studied, focusing on their ability to quantify and predict risks. This section will explore frameworks that integrate climate factors into credit risk models, providing a foundation for developing solutions that are both forward-looking and actionable.

Workplace

The project is executed within the Financial Services team at Accenture, daily supervision within the company by Bart Bakker Schut. Weekly to daily supervision within TU Delft by dr. ir. Kees Vuik in real life or through online meetings.