

# Credit risk through a causal lens: How understanding discretionary drivers of risk could improve credit operations

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To date, academic research has provided many approaches and methodologies to tackle the problem of estimating credit risk. However, much of the existing research has focused mostly on correlational evidence, estimating risk for a specific pair of, e.g., customer and credit amount. This disregards lenders' discretion about the terms of a credit before and during origination. To optimally aid loan operations, we argue that the problem of estimating credit risk should be posed as a problem of causal inference. To date, no such model has been proposed in the academic literature.

In this work, we look at the various aspects of credit risk modelling as both a field of research, and a crucial task in banking operations. We show how tasks like risk mitigation, default prediction, and loss minimization are in fact situations of treatment and effect.

Learning a treatment effect model is typically challenging, as the training data is observational and typically subject to various types of bias. In credit risk, for example, credit rates are not assigned randomly to customers, and customer groups might self-select in the products they apply for. This calls for the application of targeted methodologies from, e.g., causal machine learning.

Finding accurate models of the effects of, e.g., tightening rates or increasing credit amounts on credit risk will enable decision makers to better steer risk and optimize long-term profitability - both for themselves, as well as the client.

For a proof-of-concept and call for further research, we implement a semi-synthetic experiment leveraging an established credit risk dataset. Our results show, how leveraging the causal nature of credit risk in real life can improve profitability of credit operations.