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Incorporating macroeconomic dynamics into credit risk models: a practical approach

Abstract

Incorporating relevant aspects of the macroeconomy into traditional credit risk measurement models is difficult. Historical information on credit risk performance is typically limited and may lack sufficient variation in aspects of interest, whilst macroeconomic data relevant to credit risk modelling may not be available. Furthermore, risk models need to recognise path-dependence in credit risk performance and correlation among economic variables, and allow one to evaluate both the direct and indirect impact of economic events on credit risk. Consequently, this paper presents a pragmatic approach that specifically recognises both the limitations in the data and the requirements for a comprehensive modelling of relevant macroeconomic magnitudes. It does so in two stages. The first stage involves the development of a new, granular leading indicator of credit risk, underpinned by a full structural econometric model of the UK economy, which allows the formulation of default rate predictions based on central case macroeconomic forecasts as well as specific hypothetical or historical macroeconomic scenarios. The second stage includes a methodology for linking the leading risk indicator to traditional scores in order to update risk prediction based purely on historical experience and to produce predictions under stress scenarios. The practicality of the approach should assist financial services organisations' efforts to build expected economic developments into competitive lending propositions, and to bring scenario planning and stress testing into their retail credit risk management practices, as required by the Capital Requirements Directive (Basel II).

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